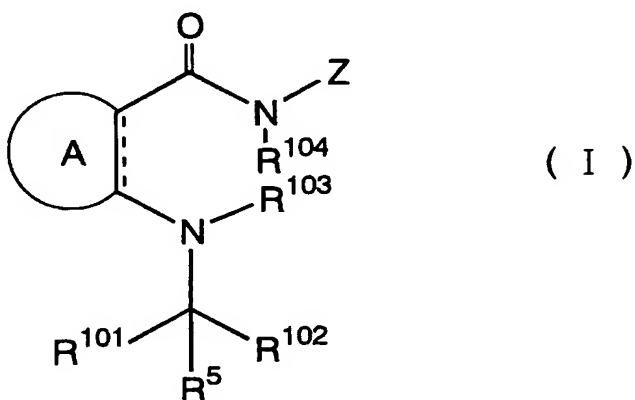


CLAIMS

1. A compound represented by formula (I) or a pharmaceutically acceptable salt or solvate thereof:



wherein

A represents a five- to nine-membered unsaturated carbocyclic moiety or a five- to nine-membered unsaturated heterocyclic moiety, and ---- represents a single bond or a double bond,

the carbocyclic moiety and heterocyclic moiety represented by A are optionally substituted by

- (a) a halogen atom;
- (b) hydroxyl;
- (c) C₁₋₆ alkyl;
- (d) C₁₋₆ alkoxy;
- (e) aryl;
- (f) aryloxy;
- (g) arylthio;
- (h) alkylthio;
- (i) nitro;
- (j) amino;
- (k) mono- or di-arylamino;
- (l) mono- or di-C₁₋₆ alkylamino;
- (m) C₂₋₆ alkenyl;
- (n) C₂₋₆ alkenyloxy;
- (o) C₂₋₆ alkenylthio;
- (p) mono- or di-C₂₋₆ alkenylamino;

(q) carboxyl; or

(r) C₁₋₆ alkyl- or aryl-oxycarbonyl;

(c) the C₁₋₆ alkyl group, (d) the C₁₋₆ alkoxy group, (e) the aryl group, (f) the aryloxy group, (g) the arylthio group, (h) the alkylthio group, (m) the C₂₋₆ alkenyl group, (n) the C₂₋₆ alkenyloxy group, and (o) the C₂₋₆ alkenylthio group are optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, (14) arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl, and the aryl group is optionally substituted by halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₁₋₆ alkylamino, (15) C₁₋₆ alkoxy-(CH₂CH₂O)_m wherein m is an integer of 1 to 6, (16) carboxyl, (17) an oxygen atom (=O), or (18) C₃₋₇ cycloalkyl,

the aryl moiety in (k) the mono- or di-aryl amino group is optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, (14) arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl, and the aryl group is optionally substituted by halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₁₋₆ alkylamino, (15) C₁₋₆ alkoxy-(CH₂CH₂O)_m wherein m is an integer of 1 to 6, (16) carboxyl, (17) an oxygen atom (=O), or (18) C₃₋₇ cycloalkyl, and, in the case of the mono-aryl amino group, the amino group is optionally substituted by C₁₋₆ alkyl optionally substituted by hydroxyl or a halogen atom,

in (l) the mono- or di-C₁₋₆ alkylamino, the di-C₁₋₆ alkyl group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by hydroxyl, a halogen atom, or aryl optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, a heterocyclic group optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, and, when one or two alkyl groups on the amino group and the cyclic amino

moiety are substituted by two C₁₋₆ alkyl groups, they together may form C₃₋₇ cycloalkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two C₁₋₆ alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl or a halogen atom; arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl; mono- or di-C₁₋₆ alkylcarbamoylmethyl in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom (=O); hydroxyl; carboxyl; C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl optionally substituted by a halogen atom or hydroxyl; or a heterocyclic group,

in (p) the mono- or di-C₂₋₆ alkenylamino group, the amino group of the monoalkenylamino group is optionally substituted by C₁₋₆ alkyl optionally substituted by hydroxyl or a halogen atom, and the di-C₂₋₆ alkenyl together may form unsaturated cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkenyl groups on the amino group or the unsaturated cyclic amino moiety are optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by hydroxyl, a halogen atom, aryl optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, a heterocyclic group optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, and, when one or two alkyl groups on the amino group and the cyclic amino moiety are substituted by two C₁₋₆ alkyl groups, they together may form C₃₋₇ cycloalkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two C₁₋₆ alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl or a halogen atom; arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl; mono- or di-C₁₋₆ alkylcarbamoylmethyl in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom (=O); hydroxyl; carboxyl; C₁₋₆ alkoxy- or aryloxy-carbonyl;

C₁₋₆ alkylcarbonyl; aryl optionally substituted by a halogen atom or hydroxyl; or a heterocyclic group,

when the carbocyclic moiety and heterocyclic moiety represented by A are substituted by two (c) C₁₋₆ alkyl groups or (m) C₂₋₆ alkenyl groups, the alkyl or alkenyl groups together with the carbon atoms to which they are respectively attached may form an unsaturated five- to seven-membered carbocyclic ring,

R⁵ represents C₁₋₆ alkyl, aryl, C₁₋₆ alkoxy, aryloxy, C₁₋₆ alkylamino, arylamino, C₁₋₆ alkylthio, arylthio, C₃₋₇ cycloalkyl, or a heterocyclic group, and the C₁₋₆ alkyl, aryl, C₁₋₆ alkoxy, aryloxy, C₁₋₆ alkylamino, arylamino, C₁₋₆ alkylthio, arylthio, C₃₋₇ cycloalkyl, or heterocyclic group represented by R⁵ may be the same or different, and is optionally substituted by

(I) a halogen atom;

(II) C₁₋₆ alkyl optionally containing a substituent selected from the group consisting of (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfinyl, (7) C₁₋₆ alkylsulfonyl, (8) mono- or di-C₁₋₆ alkylamino, (8') amino substituted by a heterocyclic group optionally substituted by C₁₋₆ alkyl, (9) C₁₋₆ alkylcarbonyloxy, (10) C₁₋₆ alkylcarbonylthio, (11) C₁₋₆ alkylcarbonylamino, (12) aryloxy, (13) arylthio, (14) arylsulfinyl, (15) arylsulfonyl, (16) arylamino, (17) C₁₋₆ alkyl- or aryl-sulfonylamino, (18) C₁₋₆ alkyl- or aryl-ureido, (19) C₁₋₆ alkoxy- or aryloxy-carbonylamino, (20) C₁₋₆ alkylamino- or arylamino-carbonyloxy, (21) carboxyl, (22) nitro, (23) a heterocyclic group, (23') Het-S(=O)_j- wherein Het represents a heterocyclic group, j is 0, 1, or 2, and Het is optionally substituted by alkyl optionally substituted by mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl, (24) cyano, and (25) a halogen atom,

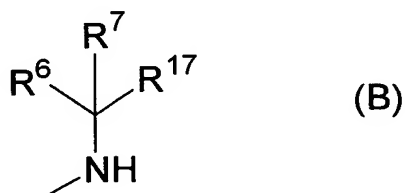
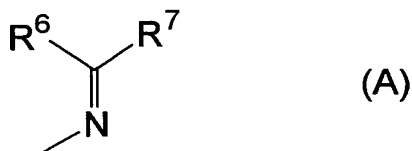
wherein the alkyl moiety in (4) the C₁₋₆ alkoxy group, (5) the C₁₋₆ alkylthio group, (6) the C₁₋₆ alkylsulfinyl group, and (7) the C₁₋₆ alkylsulfonyl group is optionally substituted by a halogen atom; C₁₋₆ alkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms; aryloxy; arylthio; hydroxyl; carboxyl; -S(=O)₂(-OH); C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl; or a heterocyclic group

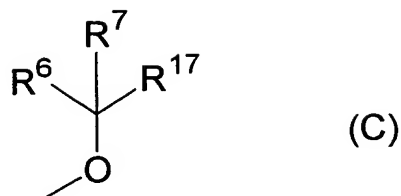
optionally substituted by alkyl optionally substituted by mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and cyclic amino moiety are optionally substituted by hydroxy, and

in (8) the mono- or di- C_{1-6} alkylamino group, the di- C_{1-6} alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by a halogen atom; C_{1-6} alkyl optionally substituted by hydroxyl, a halogen atom, aryl optionally substituted by a halogen atom, C_{1-6} alkyl, or C_{1-6} alkyloxy, or a heterocyclic group optionally substituted by a halogen atom, C_{1-6} alkyl, or C_{1-6} alkyloxy, and, when one or two alkyl groups on the amino group and the cyclic amino moiety are substituted by two C_{1-6} alkyl groups, they together may form C_{3-7} cycloalkyl; C_{1-6} alkoxy; C_{1-6} alkylthio; mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; arylamino in which the amino group is optionally substituted by C_{1-6} alkyl; mono- or di- C_{1-6} alkylcarbamoylmethyl in which the di- C_{1-6} alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom (=O); hydroxyl; carboxyl; C_{1-6} alkoxy- or aryloxy-carbonyl; C_{1-6} alkylcarbonyl; aryl optionally substituted by a halogen atom or hydroxyl; or a heterocyclic group, and, when one carbon atom in the cyclic amino moiety is substituted by two C_{1-6} alkoxy groups which may be the same or different, the two alkoxy groups together may form group $-O-(CH_2)_p-O-$ wherein p is an integer of 2 to 4, and the cyclic amino group may condense with a monocyclic or bicyclic aromatic carbocyclic ring or a monocyclic or bicyclic aromatic heterocyclic ring to represent a bicyclic or tricyclic heterocyclic group;

- (III) C_{1-6} alkoxy optionally substituted by a halogen atom;
- (IV) C_{1-6} alkylthio optionally substituted by a halogen atom;
- (V) C_{3-7} cycloalkyl;
- (VI) aryl;

- (VII) aryloxy;
 (VIII) C₁₋₆ alkylcarbonylamino;
 (VIX) C₁₋₆ alkylcarbonyloxy;
 (X) hydroxyl;
 (XI) nitro;
 (XII) cyano;
 (XIII) amino;
 (XIV) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms;
 (XV) arylamino;
 (XVI) C₁₋₆ alkyl- or aryl-sulfonylamino;
 (XVII) C₁₋₆ alkyl- or aryl-ureido;
 (XVIII) C₁₋₆ alkoxy- or aryloxy-carbonylamino;
 (XIX) C₁₋₆ alkylamino- or arylamino-carbonyloxy;
 (XX) C₁₋₆ alkoxy- or aryloxy-carbonyl;
 (XXI) acyl;
 (XXII) carboxyl;
 (XXIII) carbamoyl;
 (XXIV) mono- or di-alkylcarbamoyl;
 (XXV) a heterocyclic group;
 (XXVI) alkyl- or aryl-sulfonyl;
 (XXVII) C₂₋₆ alkenyloxy group; or
 (XXVIII) C₂₋₆ alkynyloxy,
 Z represents group (A), group (B), or group (C):





wherein

R^6 and R^7 , which may be the same or different, represent a hydrogen atom, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, aryl, aryl C_{1-6} alkyl, aryl C_{2-6} alkenyl, or a heterocyclic group, and the C_{1-6} alkyl, aryl, aryl C_{1-6} alkyl, aryl C_{2-6} alkenyl, and heterocyclic groups, which may be the same or different, are optionally substituted by:

(I) a halogen atom;

(II) C_{1-6} alkyl optionally having a substituent selected from a group consisting of (1) hydroxyl, (2) thiol, (3) amino, (4) C_{1-6} alkoxy, (5) C_{1-6} alkylthio optionally substituted by hydroxyl, (6) C_{1-6} alkylsulfinyl, (7) C_{1-6} alkylsulfonyl, (8) mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (9) C_{1-6} alkylcarbonyloxy, (10) C_{1-6} alkylcarbonylthio, (11) C_{1-6} alkylcarbonylamino, (12) aryloxy, (13) arylthio, (14) arylsulfinyl, (15) arylsulfonyl, (16) arylamino, (17) C_{1-6} alkyl- or aryl-sulfonylamino, (18) C_{1-6} alkyl- or aryl-ureido, (19) C_{1-6} alkoxy- or aryloxy-carbonylamino, (20) C_{1-6} alkylamino- or arylamino-carbonyloxy, (21) carboxyl, (22) nitro, (23) a heterocyclic group, (23') Het-S- wherein Het represents a heterocyclic group, (24) cyano, (25) a halogen atom, and (26) C_{1-6} alkyl- or aryl-oxycarbonyl;

(III) C_{1-6} alkoxy optionally having a substituent selected from the group consisting of (1) hydroxyl, (2) thiol, (3) amino, (4) C_{1-6} alkoxy, (5) C_{1-6} alkylthio optionally substituted by hydroxyl, (6) C_{1-6} alkylsulfinyl, (7) C_{1-6} alkylsulfonyl, (8) mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (9) C_{1-6} alkylcarbonyloxy, (10) C_{1-6} alkylcarbonylthio, (11) C_{1-6} alkylcarbonylamino, (12) aryloxy, (13) arylthio, (14) arylsulfinyl, (15) arylsulfonyl, (16) arylamino, (17) C_{1-6} alkyl- or aryl-sulfonylamino, (18) C_{1-6} alkyl- or aryl-ureido, (19) C_{1-6} alkoxy- or aryloxy-carbonylamino, (20) C_{1-6} alkylamino- or arylamino-carbonyloxy, (21) carboxyl, (22) nitro, (23) a heterocyclic group, (23') Het-S- wherein Het represents a

heterocyclic group, (24) cyano, (25) a halogen atom, and (26) C₁₋₆ alkyl- or aryl-oxycarbonyl;

(IV) C₁₋₆ alkylthio optionally substituted by a halogen atom;

(V) C₃₋₇ cycloalkyl;

(VI) aryl;

(VII) aryloxy;

(VIII) C₁₋₆ alkylcarbonylamino;

(VIX) C₁₋₆ alkylcarbonyloxy;

(X) hydroxyl;

(XI) nitro;

(XII) cyano;

(XIII) amino;

(XIV) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms;

(XV) arylamino;

(XVI) C₁₋₆ alkyl- or aryl-sulfonylamino;

(XVII) C₁₋₆ alkyl- or aryl-ureido;

(XVIII) C₁₋₆ alkoxy- or aryloxy-carbonylamino;

(XIX) C₁₋₆ alkylamino- or arylamino-carbonyloxy;

(XX) C₁₋₆ alkoxy- or aryloxy-carbonyl;

(XXI) acyl;

(XXII) carboxyl;

(XXIII) carbamoyl;

(XXIV) mono- or di-alkylcarbamoyl;

(XXV) a heterocyclic group;

(XXVI) alkyl- or aryl-sulfonyl;

(XXVII) C₂₋₆ alkenyloxy; or

(XXVIII) C₂₋₆ alkynyloxy,

R¹⁷ represents a hydrogen atom,

R¹⁰¹ and R¹⁰² together represent =O, and R¹⁰³ and R¹⁰⁴ represent a hydrogen atom, or R¹⁰¹ and R¹⁰⁴ together represent a bond, and R¹⁰² and R¹⁰³ together represent a bond.

2. The compound according to claim 1, wherein A represents a five- to nine-membered unsaturated carbocyclic moiety or a five- to nine-membered unsaturated heterocyclic moiety, and ----

represents a double bond,

the carbocyclic moiety and heterocyclic moiety represented by A are optionally substituted by

- (a) a halogen atom;
- (b) hydroxyl;
- (c) C₁₋₆ alkyl;
- (d) C₁₋₆ alkoxy;
- (e) aryl;
- (f) aryloxy;
- (g) arylthio;
- (h) alkylthio;
- (i) nitro; or
- (j) amino,

(c) the C₁₋₆ alkyl group, (d) the C₁₋₆ alkoxy group, (e) the aryl group, (f) the aryloxy group, (g) the arylthio group, and (h) the alkylthio group are optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, or (14) arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl, and the aryl group is optionally substituted by a halogen atom, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₁₋₆ alkylamino,

when the carbocyclic moiety and the heterocyclic moiety are substituted by two (c) C₁₋₆ alkyl groups, they together may form a C₃₋₅ alkylene chain,

R⁵ represents C₁₋₆ alkyl, aryl, C₁₋₆ alkoxy, aryloxy, C₁₋₆ alkylamino, arylamino, C₁₋₆ alkylthio, arylthio, C₃₋₇ cycloalkyl, or a heterocyclic group, and the C₁₋₆ alkyl, aryl, C₁₋₆ alkoxy, aryloxy, C₁₋₆ alkylamino, arylamino, C₁₋₆ alkylthio, arylthio, C₃₋₇ cycloalkyl, or heterocyclic group represented by R⁵ may be the same or different, and is optionally substituted by

- (I) a halogen atom;

(II) C₁₋₆ alkyl optionally containing a substituent selected from the group consisting of (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfinyl, (7) C₁₋₆ alkylsulfonyl, (8) mono- or di-C₁₋₆ alkylamino, (8') amino substituted by a heterocyclic group optionally

substituted by C₁₋₆ alkyl, (9) C₁₋₆ alkylcarbonyloxy, (10) C₁₋₆ alkylcarbonylthio, (11) C₁₋₆ alkylcarbonylamino, (12) aryloxy, (13) arylthio, (14) arylsulfinyl, (15) arylsulfonyl, (16) arylamino, (17) C₁₋₆ alkyl- or arylsulfonylamino, (18) C₁₋₆ alkyl- or aryl-ureido, (19) C₁₋₆ alkoxy- or aryloxy-carbonylamino, (20) C₁₋₆ alkylamino- or arylamino-carbonyloxy, (21) carboxyl, (22) nitro, (23) a heterocyclic group, (23') Het-S(=O)_j- wherein Het represents a heterocyclic group, j is 0, 1, or 2, and Het is optionally substituted by alkyl optionally substituted by mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl, (24) cyano, and (25) a halogen atom,

wherein the alkyl moiety in (4) the C₁₋₆ alkoxy group, (5) the C₁₋₆ alkylthio group, (6) the C₁₋₆ alkylsulfinyl group, and (7) the C₁₋₆ alkylsulfonyl group is optionally substituted by a halogen atom; C₁₋₆ alkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms; aryloxy; arylthio; hydroxyl; carboxyl; -S(=O)₂(-OH); C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl; or a heterocyclic group optionally substituted by alkyl optionally substituted by mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxy, and

in (8) the mono- or di-C₁₋₆ alkylamino group, the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by hydroxyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which one or two alkyl groups on the amino group are optionally substituted by hydroxyl; arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl; mono- or di-C₁₋₆ alkylcarbamoylmethyl in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom

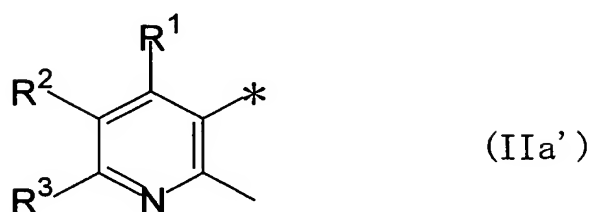
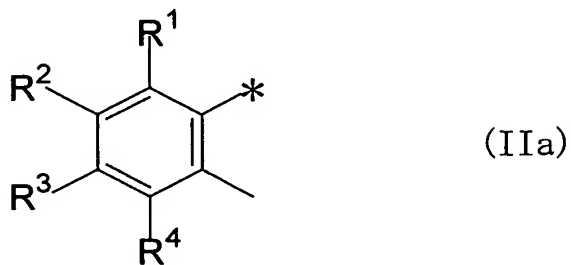
(=O); hydroxyl; carboxyl; C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl optionally substituted by a halogen atom or hydroxyl; or a heterocyclic group;

- (III) C₁₋₆ alkoxy optionally substituted by a halogen atom;
- (IV) C₁₋₆ alkylthio optionally substituted by a halogen atom;
- (V) C₃₋₇ cycloalkyl;
- (VI) aryl;
- (VII) aryloxy;
- (VIII) C₁₋₆ alkylcarbonylamino;
- (VIX) C₁₋₆ alkylcarbonyloxy;
- (X) hydroxyl;
- (XI) nitro;
- (XII) cyano;
- (XIII) amino;
- (XIV) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms;
- (XV) arylamino;
- (XVI) C₁₋₆ alkyl- or aryl-sulfonylamino;
- (XVII) C₁₋₆ alkyl- or aryl-ureido;
- (XVIII) C₁₋₆ alkoxy- or aryloxy-carbonylamino;
- (XIX) C₁₋₆ alkylamino- or arylamino-carbonyloxy;
- (XX) C₁₋₆ alkoxy- or aryloxy-carbonyl;
- (XXI) acyl;
- (XXII) carboxyl;
- (XXIII) carbamoyl;
- (XXIV) mono- or di-alkylcarbamoyl;
- (XXV) a heterocyclic group;
- (XXVI) alkyl- or aryl-sulfonyl;
- (XXVII) C₂₋₆ alkenyloxy; or
- (XXVIII) C₂₋₆ alkynyloxy,

Z represents group A or group B wherein R⁶, R⁷, and R¹⁷ are as defined in claim 1,

R¹⁰¹ and R¹⁰² together represent =O, and R¹⁰³ and R¹⁰⁴ represent a hydrogen atom, or R¹⁰¹ and R¹⁰⁴ together represent a bond, and R¹⁰² and R¹⁰³ together represent a bond.

3. The compound according to claim 1 or 2, wherein A represents formula (IIa) or formula (IIa'):



wherein R¹, R², R³, and R⁴, which may be the same or different, represent

- (a) a halogen atom;
- (b) hydroxyl;
- (c) C₁₋₆ alkyl;
- (d) C₁₋₆ alkoxy;
- (e) aryl;
- (f) aryloxy;
- (g) arylthio;
- (h) alkylthio;
- (i) nitro;
- (j) amino;
- (i) nitro;
- (j) amino;
- (k) mono- or di-arylamino;
- (l) mono- or di-C₁₋₆ alkylamino;
- (m) C₂₋₆ alkenyl;
- (n) C₂₋₆ alkenyloxy;
- (o) C₂₋₆ alkenylthio;
- (p) mono- or di-C₂₋₆ alkenylamino;
- (q) carboxyl;
- (r) C₁₋₆ alkyl- or aryl-oxycarbonyl; or

(s) a hydrogen atom,

(c) the C₁₋₆ alkyl group, (d) the C₁₋₆ alkoxy group, (e) the aryl group, (f) the aryloxy group, (g) the arylthio group, (h) the alkylthio group, (m) the C₂₋₆ alkenyl group, (n) the C₂₋₆ alkenyloxy group, and (o) the C₂₋₆ alkenylthio group are optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, or (14) arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl, and the aryl group is optionally substituted by halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₁₋₆ alkylamino, (15) C₁₋₆ alkoxy-(CH₂CH₂O)_m wherein m is an integer of 1 to 6, (16) carboxyl, (17) an oxygen atom (=O), or (18) C₃₋₇ cycloalkyl,

the aryl moiety in (k) the mono- or di-aryl amino group is optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, (14) arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl, and the aryl group is optionally substituted by a halogen atom, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₁₋₆ alkylamino, (15) C₁₋₆ alkoxy-(CH₂CH₂O)_m wherein m is an integer of 1 to 6, (16) carboxyl, (17) an oxygen atom (=O), or (18) C₃₋₇ cycloalkyl, and, in the case of the mono-aryl amino group, the amino group is optionally substituted by C₁₋₆ alkyl optionally substituted by hydroxyl or a halogen atom,

in (l) the mono- or di-C₁₋₆ alkylamino, the di-C₁₋₆ alkyl group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by hydroxyl, a halogen atom, or aryl optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkoxy, a heterocyclic group optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkoxy, and, when one or two alkyl groups on the amino group and the cyclic amino moiety are substituted by two C₁₋₆ alkyl groups, they together may form

C₃₋₇ cycloalkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two C₁₋₆ alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl or a halogen atom; arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl; mono- or di-C₁₋₆ alkylcarbamoylmethyl in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom (=O); hydroxyl; carboxyl; C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl optionally substituted by a halogen atom or hydroxyl; or a heterocyclic group,

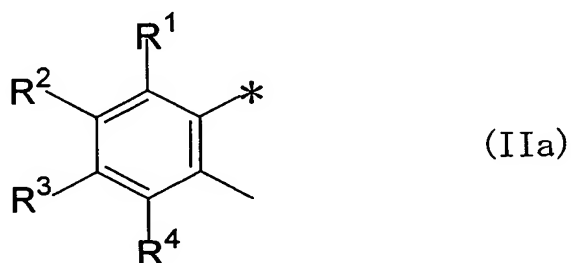
in (p) the mono- or di-C₂₋₆ alkenylamino group, the amino group of the monoalkenylamino group is optionally substituted by C₁₋₆ alkyl optionally substituted by hydroxyl or a halogen atom, and the di-C₂₋₆ alkenyl together may form unsaturated cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkenyl groups on the amino group or the unsaturated cyclic amino moiety is optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by hydroxyl, a halogen atom, aryl optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, a heterocyclic group optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, and, when one or two alkyl groups on the amino group and the cyclic amino moiety are substituted by two C₁₋₆ alkyl groups, they together may form C₃₋₇ cycloalkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two C₁₋₆ alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl or a halogen atom; arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl; mono- or di-C₁₋₆ alkylcarbamoylmethyl in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom (=O); hydroxyl; carboxyl; C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl optionally substituted by a halogen atom or

hydroxyl; or a heterocyclic group,

when the carbocyclic moiety and hetrocyclic moiety represented by A are substituted by two (c) C₁₋₆ alkyl groups or (m) C₂₋₆ alkenyl groups, the alkyl or alkenyl groups together with the carbon atoms to which they are respectively attached may form an unsaturated five- to seven-membered carbocyclic ring, and

* represents a bond to -C(=O)-N(-Z)(-R¹⁰⁴).

4. The compound according to claim 1 or 2, wherein A represents formula (IIa):



wherein R¹, R², R³, and R⁴, which may be the same or different, represent

- (a) a halogen atom;
- (b) hydroxyl;
- (c) C₁₋₆ alkyl;
- (d) C₁₋₆ alkoxy;
- (e) aryl;
- (f) aryloxy;
- (g) arylthio;
- (h) alkylthio;
- (i) nitro;
- (j) amino; or
- (k) a hydrogen atom,

(c) the C₁₋₆ alkyl group, (d) the C₁₋₆ alkoxy group, (e) the aryl group, (f) the aryloxy group, (g) the arylthio group, and (h) the alkylthio group are optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10)

arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, or (14) arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl, and the aryl group is optionally substituted by halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₁₋₆ alkylamino, and

* represents a bond to -C(=O)-N(-Z)(-R¹⁰⁴).

5. The compound according to claim 3 or 4, wherein R¹, R³, and R⁴, which may be the same or different, represent a hydrogen atom;

a halogen atom;

C₁₋₆ alkyl in which the alkyl group is optionally substituted by C₁₋₆ alkoxy or a halogen atom;

aryl optionally substituted by C₁₋₆ alkoxy or a halogen atom;

C₁₋₆ alkoxy in which the alkoxy group is optionally substituted by C₁₋₆ alkoxy or a halogen atom; or

aryloxy optionally substituted by C₁₋₆ alkoxy or a halogen atom,

R² represents

a hydrogen atom;

a halogen atom;

hydroxyl;

C₁₋₆ alkyl in which the alkyl group is optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, or (14) arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl, and the aryl group is optionally substituted by a halogen atom, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₁₋₆ alkylamino; or

C₁₋₆ alkoxy in which the alkoxy group is optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C₁₋₆ alkoxy, (5) C₁₋₆ alkylthio, (6) C₁₋₆ alkylsulfonyl, (7) mono- or di-C₁₋₆ alkylamino in which di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, or (13) a halogen atom.

6. The compound according to claim 3 or 4, wherein R^1 , R^2 , R^3 , and R^4 , which may be the same or different, represent a hydrogen atom; a halogen atom; hydroxyl; optionally substituted C_{1-6} alkyl; optionally substituted C_{2-6} alkenyl; optionally substituted C_{1-6} alkoxy; optionally substituted mono- or di-aryl amino; optionally substituted mono- or di- C_{1-6} alkyl amino in which the dialkyl amino together may form optionally substituted cyclic amino optionally containing 1 to 3 heteroatoms; optionally substituted mono- or di- C_{2-6} alkenyl amino in which the di- C_{2-6} alkenyl amino group together may form optionally substituted unsaturated cyclic amino optionally containing 1 to 3 heteroatoms, and, when R^2 and R^3 are optionally substituted C_{1-6} alkyl or optionally substituted C_{2-6} alkenyl, the alkyl or alkenyl groups together with the carbon atoms to which they are respectively attached may form an unsaturated five- to seven-membered carbocyclic ring.

7. The compound according to claim 3 or 4, wherein R^1 , R^2 , R^3 , and R^4 , which may be the same or different, represent a hydrogen atom; a halogen atom; hydroxyl; optionally substituted C_{1-6} alkyl; or optionally substituted C_{1-6} alkoxy.

8. The compound according to claim 3 or 4, wherein R^1 , R^2 , R^3 , and R^4 represent a hydrogen atom.

9. The compound according to claim 3 or 4, wherein R^1 and R^4 represent a hydrogen atom, any one of R^2 and R^3 represents a halogen atom; hydroxyl; optionally substituted C_{1-6} alkyl; optionally substituted C_{1-6} alkoxy; optionally substituted mono- or di-aryl amino; optionally substituted mono- or di- C_{1-6} alkyl amino in which the dialkyl amino together may form optionally substituted cyclic amino optionally containing 1 to 3 heteroatoms; optionally substituted mono- or di- C_{2-6} alkenyl amino in which the di- C_{2-6} alkenyl amino group together may form optionally substituted unsaturated cyclic amino, wherein the cyclic amino groups may contain 1 to 3 heteroatoms, and the other represents a hydrogen atom.

10. The compound according to claim 3 or 4, wherein R^1 and

R⁴ represent a hydrogen atom, and any one of R² and R³ represents a halogen atom; hydroxyl; optionally substituted C₁₋₆ alkyl; optionally substituted C₁₋₆ alkoxy, and the other represents a hydrogen atom.

11. The compound according to claim 3 or 4, wherein R¹ and R⁴ represent a hydrogen atom, and R² and R³, which may be the same or different, represent a halogen atom; hydroxyl; optionally substituted C₁₋₆ alkyl; or optionally substituted C₁₋₆ alkoxy.

12. The compound according to claim 3 or 4, wherein R¹ and R⁴ represent a hydrogen atom, and R² and R³ together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring.

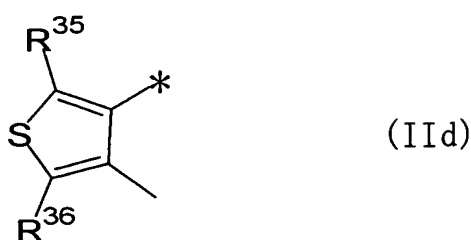
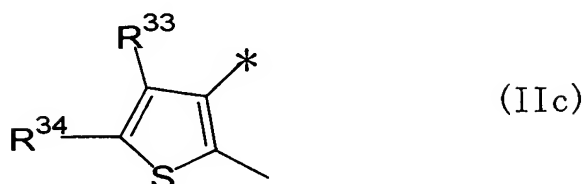
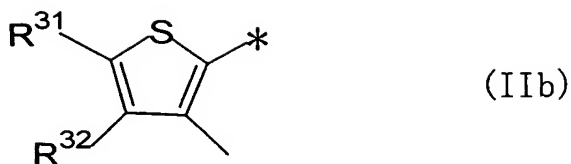
13. The compound according to claim 3 or 4, wherein R¹ and R⁴ represent a hydrogen atom, and R² and R³, which may be the same or different, represent optionally substituted C₁₋₆ alkoxy.

14. The compound according to claim 3 or 4, wherein R¹ and R⁴ represent a hydrogen atom, any one of R² and R³ represents optionally substituted mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, and the other represents a hydrogen atom.

15. The compound according to claim 3 or 4, wherein R¹ and R⁴ represent a hydrogen atom, any one of R² and R³ represent optionally substituted C₁₋₆ alkoxy, and the other represents a hydrogen atom.

16. The compound according to claim 6 or 7, wherein R¹ and R⁴ represent a hydrogen atom.

17. The compound according to claim 1 or 2, wherein A represents formula (IIb), (IIc), or (IIId):



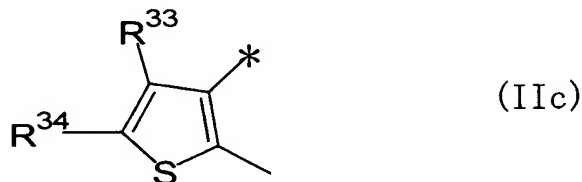
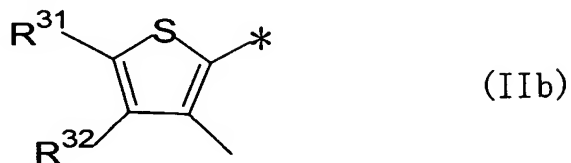
wherein

R^{31} , R^{32} , R^{33} , R^{34} , R^{35} , and R^{36} , which may be the same or different, represent a hydrogen atom; a halogen atom; or C_{1-6} alkyl in which the alkyl group is optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C_{1-6} alkoxy, (5) C_{1-6} alkylthio, (6) C_{1-6} alkylsulfonyl, (7) mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, or (14) arylamino in which the amino group is optionally substituted by C_{1-6} alkyl, and the aryl group is optionally substituted by a halogen, C_{1-6} alkyl, C_{1-6} alkoxy, or C_{1-6} alkylamino; or C_{2-6} alkenyl,

when R^{31} and R^{32} represent alkyl or alkenyl, the alkyl or alkenyl groups together with the carbon atoms to which they are respectively attached may form an unsaturated five- to seven-membered carbocyclic ring, and, when R^{33} and R^{34} represent alkyl or alkenyl, the alkyl or alkenyl groups together with the carbon atoms to which they are respectively attached may form an unsaturated five- to seven-membered carbocyclic ring, and

* represents a bond to $-C(=O)-N(-Z)(-R^{104})$.

18. The compound according to claim 1 or 2, wherein A represents formula (IIb) or (IIc):



wherein

R^{31} , R^{32} , R^{33} , and R^{34} , which may be the same or different, represent a hydrogen atom; a halogen atom; or C_{1-6} alkyl in which the alkyl group is optionally substituted by (1) hydroxyl, (2) thiol, (3) amino, (4) C_{1-6} alkoxy, (5) C_{1-6} alkylthio, (6) C_{1-6} alkylsulfonyl, (7) mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, (8) aryloxy, (9) arylthio, (10) arylsulfonyl, (11) aryl, (12) a heterocyclic group, (13) a halogen atom, or (14) arylamino in which the amino group is optionally substituted by C_{1-6} alkyl, and the aryl group is optionally substituted by a halogen, C_{1-6} alkyl, C_{1-6} alkoxy, or C_{1-6} alkylamino,

when R^{31} and R^{32} represent alkyl, the alkyl groups together with the carbon atoms to which they are respectively attached may form an unsaturated five- to seven-membered carbocyclic ring, and, when R^{33} and R^{34} represent alkyl, the alkyl groups together with the carbon atoms to which they are respectively attached may form an unsaturated five- to seven-membered carbocyclic ring, and

* represents a bond to $-C(=O)-N(-Z)(-R^{104})$.

19. The compound according to claim 17 or 18, wherein A represents formula (IIb),

(i) R^{31} and R^{32} represent a hydrogen atom,

(ii) any one of R^{31} and R^{32} represents a hydrogen atom, and the other represents C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino,

which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms,

(iii) R^{31} and R^{32} , which may be the same or different, represent C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms, or

(iv) R^{31} and R^{32} together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring.

20. The compound according to claim 17 or 18, wherein A represents formula (IIb), R^{31} and R^{32} represent a hydrogen atom, or any one of R^{31} and R^{32} represents a hydrogen atom with the other representing C_{1-6} alkyl optionally substituted by a halogen atom, or R^{31} and R^{32} together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring.

21. The compound according to claim 17 or 18, wherein A represents formula (IIc),

(i) R^{33} and R^{34} represent a hydrogen atom,

(ii) any one of R^{33} and R^{34} represents a hydrogen atom, and the other represents C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms,

(iii) R^{33} and R^{34} , which may be the same or different, represent C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms, or

(iv) R^{33} and R^{34} together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring.

22. The compound according to claim 17 or 18, wherein A represents formula (IIc), R^{33} and R^{34} represent a hydrogen atom, or any one of R^{33} and R^{34} represents a hydrogen atom with the other representing C_{1-6} alkyl optionally substituted by a halogen atom, or R^{33}

and R³⁴ together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring.

23. The compound according to claim 17, wherein A represents formula (IIId), R³⁵ and R³⁶ represent a hydrogen atom, or any one of R³⁵ and R³⁶ represents a hydrogen atom with the other representing C₁₋₆ alkyl optionally substituted by a halogen atom.

24. The compound according to claim 1 or 2, wherein R⁵ represents optionally substituted C₅₋₇ cycloalkyl, optionally substituted aryl, an optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, or an optionally substituted saturated or unsaturated nine- to eleven-membered bicyclic heterocyclic group.

25. The compound according to claim 24, wherein the aryl group is phenyl or naphthyl.

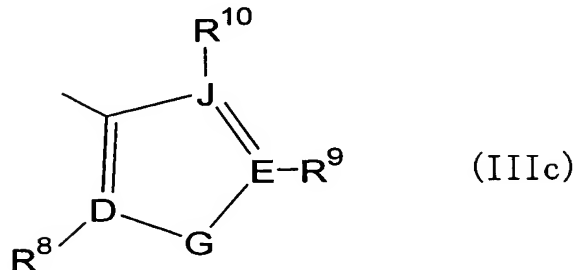
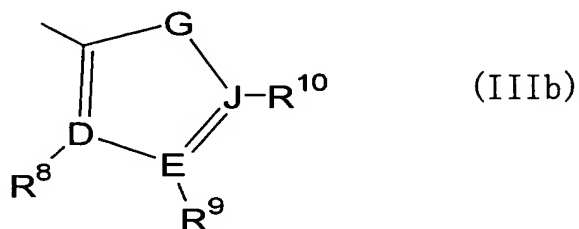
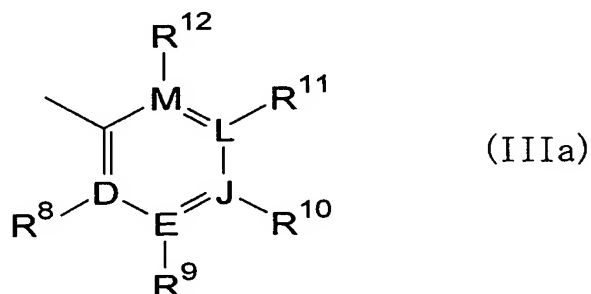
26. The compound according to claim 24, wherein the heterocyclic group is selected from pyridyl, furyl, thienyl, isoxazole, pyrimidyl, and quinoxalinyll.

27. The compound according to claim 1 or 2, wherein R⁵ represents a cyclic group selected from C₅₋₇ cycloalkyl, phenyl, pyridyl, furyl, thienyl, isoxazole, pyrimidyl, and quinoxalinyll, in which the cyclic group is optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by a halogen atom; C₁₋₆ alkoxy optionally substituted by a halogen atom; or hydroxyl.

28. The compound according to claim 1 or 2, wherein R⁵ represents a cyclic group selected from C₅₋₇ cycloalkyl, phenyl, pyridyl, furyl, thienyl, isoxazole, pyrimidyl, and quinoxalinyll, in which the cyclic group is optionally substituted by C₁₋₆ alkyl optionally substituted by optionally substituted C₁₋₆ alkoxy, optionally substituted C₁₋₆ alkylthio, optionally substituted C₁₋₆ alkylsulfinyl, optionally substituted C₁₋₆ alkylsulfonyl, or optionally substituted mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing

1 to 3 heteroatoms.

29. The compound according to claim 1 or 2, wherein R^5 represents a group of formula (IIIa), (IIIb), or (IIIc):



wherein

D, E, J, L, and M, which may be the same or different, represent a carbon or nitrogen atom,

G represents an oxygen or sulfur atom,

R^8 , R^9 , R^{10} , R^{11} , and R^{12} , which may be the same or different, represent

(I) a halogen atom;

(II) C_{1-6} alkyl optionally containing a substituent selected from the group consisting of (1) hydroxyl, (2) thiol, (3) amino, (4) C_{1-6} alkoxy, (5) C_{1-6} alkylthio, (6) C_{1-6} alkylsulfinyl, (7) C_{1-6} alkylsulfonyl, (8) mono- or di- C_{1-6} alkylamino, (8') amino substituted by a heterocyclic group optionally

substituted by C₁₋₆ alkyl, (9) C₁₋₆ alkylcarbonyloxy, (10) C₁₋₆ alkylcarbonylthio, (11) C₁₋₆ alkylcarbonylamino, (12) aryloxy, (13) arylthio, (14) arylsulfinyl, (15) arylsulfonyl, (16) arylamino, (17) C₁₋₆ alkyl- or aryl-sulfonylamino, (18) C₁₋₆ alkyl- or aryl-ureido, (19) C₁₋₆ alkoxy- or aryloxy-carbonylamino, (20) C₁₋₆ alkylamino- or arylamino-carbonyloxy, (21) carboxyl, (22) nitro, (23) a heterocyclic group, (23') Het-S(=O)_j- wherein Het represents a heterocyclic group, j is 0, 1, or 2, and Het is optionally substituted by alkyl optionally substituted by mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl, (24) cyano, and (25) a halogen atom,

wherein the alkyl moiety in (4) the C₁₋₆ alkoxy group, (5) the C₁₋₆ alkylthio group, (6) the C₁₋₆ alkylsulfinyl group, and (7) the C₁₋₆ alkylsulfonyl group is optionally substituted by a hydrogen atom; a halogen atom; C₁₋₆ alkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms; aryloxy; arylthio; hydroxyl; carboxyl; -S(=O)₂(-OH); C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl; or a heterocyclic group optionally substituted by alkyl optionally substituted by mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxy, and

in (8) the mono- or di-C₁₋₆ alkylamino group, the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by hydroxyl, a halogen atom, aryl optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, or a heterocyclic group optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, and, when one or two alkyl groups on the amino group and the cyclic amino moiety are substituted by two C₁₋₆ alkyl groups, they together may form C₃₋₇ cycloalkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and

the cyclic amino moiety are optionally substituted by hydroxyl; arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl; mono- or di-C₁₋₆ alkylcarbamoylemethyl in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom (=O); hydroxyl; carboxyl; C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl optionally substituted by a halogen atom or hydroxyl; or a heterocyclic group, and, when one carbon atom in the cyclic amino moiety is substituted by two C₁₋₆ alkoxy groups which may be the same or different, the two alkoxy groups together may form group -O-(CH₂)_p-O- wherein p is an integer of 2 to 4, and the cyclic amino group may condense with a monocyclic or bicyclic aromatic carbocyclic ring or a monocyclic or bicyclic aromatic heterocyclic ring to represent a bicyclic or tricyclic heterocyclic group;

- (III) C₁₋₆ alkoxy optionally substituted by a halogen atom;
- (IV) C₁₋₆ alkylthio optionally substituted by a halogen atom;
- (V) C₃₋₇ cycloalkyl;
- (VI) aryl;
- (VII) aryloxy;
- (VIII) C₁₋₆ alkylcarbonylamino;
- (VIX) C₁₋₆ alkylcarbonyloxy;
- (X) hydroxyl;
- (XI) nitro;
- (XII) cyano;
- (XIII) amino;
- (XIV) mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms;
- (XV) arylamino;
- (XVI) C₁₋₆ alkyl- or aryl-sulfonylamino;
- (XVII) C₁₋₆ alkyl- or aryl-ureido;
- (XVIII) C₁₋₆ alkoxy- or aryloxy-carbonylamino;
- (XIX) C₁₋₆ alkylamino- or arylamino-carbonyloxy;
- (XX) C₁₋₆ alkoxy- or aryloxy-carbonyl;
- (XXI) acyl;
- (XXII) carboxyl;

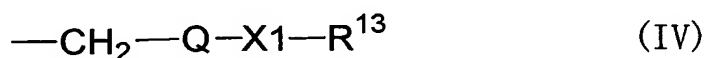
- (XXIII) carbamoyl;
- (XXIV) mono- or di-alkylcarbamoyl;
- (XXV) a heterocyclic group;
- (XXVI) alkyl- or aryl-sulfonyl;
- (XXVII) C₂₋₆ alkenyloxy;
- (XXVIII) C₂₋₆ alkynyloxy; or
- (XXIX) a hydrogen atom, and

when D, E, J, L, or M represents a nitrogen atom, R⁸, R⁹, R¹⁰, R¹¹, and R¹² each are absent, or otherwise may combine with a nitrogen atom to form N-oxide (N → O).

30. The compound according to claim 29, wherein R⁸, R⁹, R¹⁰, R¹¹, and R¹², which may be the same or different, represent

- a hydrogen atom;
- a halogen atom;
- hydroxymethyl;
- C₁₋₆ alkyl optionally substituted by a halogen atom; or
- C₁₋₆ alkoxy optionally substituted by a halogen atom.

31. The compound according to claim 27, wherein substituted C₁₋₆ alkyl which may be represented by R⁸, R⁹, R¹⁰, R¹¹, and R¹² represents a group of formula (IV)



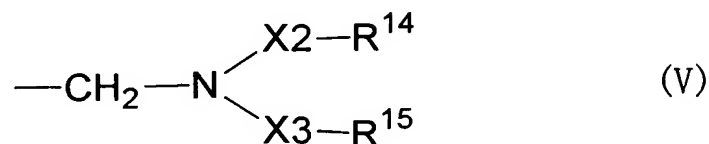
wherein

Q represents an oxygen atom, a sulfur atom, sulfinyl, or sulfonyl,

X1 represents a bond or straight chain or branched chain alkylene having 1 to 5 carbon atoms,

R¹³ represents a hydrogen atom, a halogen atom, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkylthio, mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, aryloxy, arylthio, hydroxyl, carboxyl, -S(=O)₂(-OH), C₁₋₆ alkoxy- or aryloxy-carbonyl, C₁₋₆ alkylcarbonyl, aryl, or a heterocyclic group optionally substituted by alkyl optionally substituted by mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic

amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl;
or a group of formula (V)



wherein

X2 represents a bond or straight chain or branched chain alkylene having 1 to 5 carbon atoms,

X3 represents a bond or straight chain or branched chain alkylene having 1 to 5 carbon atoms,

R¹⁴ and R¹⁵, which may be the same or different, represent a hydrogen atom; a halogen atom; C₁₋₆ alkyl optionally substituted by hydroxyl, a halogen atom, aryl optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, a heterocyclic group optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkyloxy, and, when one or two alkyl groups on the amino group and the cyclic amino moiety are substituted by two C₁₋₆ alkyl groups, they together may form C₃₋₇ cycloalkyl; C₁₋₆ alkoxy; C₁₋₆ alkylthio; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; arylamino in which the amino group is optionally substituted by C₁₋₆ alkyl; mono- or di-C₁₋₆ alkylcarbamoylmethyl in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; aryloxy; arylthio; an oxygen atom (=O); hydroxyl; carboxyl; C₁₋₆ alkoxy- or aryloxy-carbonyl; C₁₋₆ alkylcarbonyl; aryl optionally substituted by a halogen atom or hydroxyl; or a heterocyclic group, provided that, when X2 represents a bond, R¹⁴ represents a hydrogen atom, or when X3 represents a bond, R¹⁵ represents a hydrogen atom, or

R¹⁴ and R¹⁵ together with a nitrogen atom to which they are respectively attached to may form a heterocyclic group that may contain

1 to 3 heteroatoms in addition to the nitrogen atom, to which R^{14} and R^{15} are attached, and is optionally substituted by hydroxyl; C_{1-6} alkyl optionally substituted by hydroxyl, a halogen atom, aryl optionally substituted by a halogen atom, C_{1-6} alkyl, or C_{1-6} alkyloxy, or a heterocyclic group optionally substituted by a halogen atom, C_{1-6} alkyl, or C_{1-6} alkyloxy, and, when one or two alkyl groups on the amino group and the cyclic amino moiety are substituted by two C_{1-6} alkyl groups, they together may form C_{3-7} cycloalkyl; mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; a saturated or unsaturated five- or six-membered heterocyclic group; mono- or di- C_{1-6} alkylcarbamoylmethyl in which the di- C_{1-6} alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, and one or two alkyl groups on the amino group and the cyclic amino moiety are optionally substituted by hydroxyl; phenyl; or an oxygen atom ($=O$), and, when one carbon atom in the cyclic amino moiety is substituted by two C_{1-6} alkoxy groups which may be the same or different, the two alkoxy groups together may form group $-O-(CH_2)_p-O-$ wherein p is an integer of 2 to 4, and the cyclic amino group may condense with a monocyclic or bicyclic aromatic carbocyclic ring or a monocyclic or bicyclic aromatic heterocyclic ring to represent a bicyclic or tricyclic heterocyclic group.

32. The compound according to any one of claims 29 to 31, wherein D, E, J, L, and M represent a carbon atom.

33. The compound according to any one of claims 29 to 31, any one or two of D, E, J, L, and M represent a nitrogen atom and the others represent a carbon atom.

34. The compound according to any one of claims 29 to 31, wherein R^5 represents formula (IIIa), and D, E, J, L, and M represent a carbon atom.

35. The compound according to any one of claims 29 to 31, wherein R^5 represents formula (IIIa), and any one or two of D, E, J, L,

and M represent a nitrogen atom with the others representing a carbon atom.

36. The compound according to any one of claims 29 to 31, wherein R^5 represents formula (IIIb), D, E, and J represent a carbon atom, and G represents an oxygen or sulfur atom.

37. The compound according to any one of claims 29 to 31, wherein R^5 represents formula (IIIc), D, E, and J represent a carbon atom, and G represents an oxygen or sulfur atom.

38. The compound according to claim 29, wherein R^5 represents formula (IIIa),
D, E, J, L, and M represent a carbon atom,
any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom.

39. The compound according to claim 29, wherein R^5 represents formula (IIIa),
any one or two of D, E, J, L, and M represent a nitrogen atom, and the others represent a carbon atom,
any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom, or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom.

40. The compound according to claim 29, wherein R^5 represents formula (IIIb),
D, E, and J represent a carbon atom, and G represents an oxygen or sulfur atom,
one or two of R^8 , R^9 , and R^{10} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted

by a halogen atom; or C₁₋₆ alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom.

41. The compound according to claim 29, wherein

R⁵ represents formula (IIIc),

D, E, and J represent a carbon atom, and G represents an oxygen or sulfur atom,

one or two of R⁸, R⁹, and R¹⁰, which may be the same or different, represent a halogen atom; hydroxymethyl; C₁₋₆ alkyl optionally substituted by a halogen atom; or C₁₋₆ alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom.

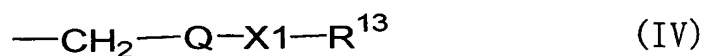
42. The compound according to claim 29, wherein

R⁵ represents formula (IIIa),

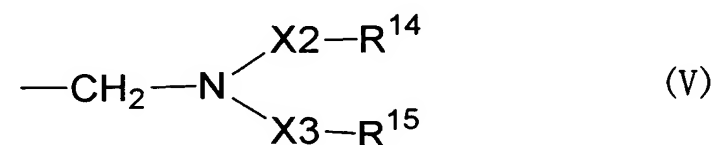
D, E, J, L, and M represent a carbon atom,

R⁸, R⁹, and R¹² represent a hydrogen atom,

one of R¹⁰ and R¹¹ represents a group of formula (IV)



wherein Q, X1, and R¹³ are as defined in claim 31,
or a group of formula (V)



wherein X2, X3, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other group represents a hydrogen atom.

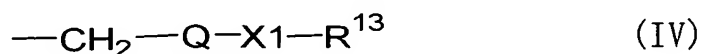
43. The compound according to claim 29, wherein

R⁵ represents formula (IIIa),

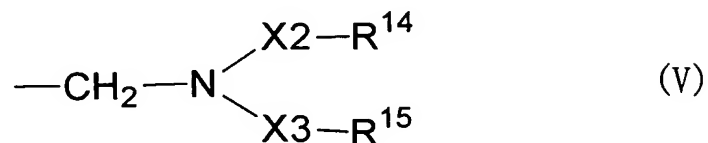
any one or two of D, E, J, L, and M represent a nitrogen atom,
and the others represent a carbon atom,

R⁸, R⁹, and R¹² represent a hydrogen atom,

one of R¹⁰ and R¹¹ represents a group of formula (IV)

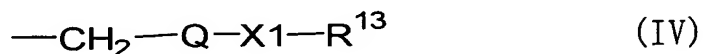


wherein Q, X1, and R¹³ are as defined in claim 31,
or a group of formula (V)

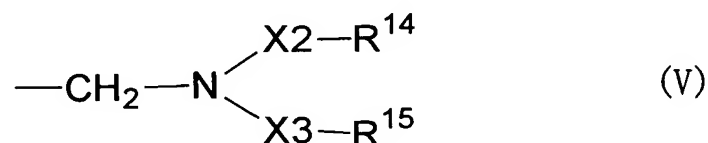


wherein X2, X3, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other group represents a hydrogen atom.

44. The compound according to claim 29, wherein
R⁵ represents formula (IIIb),
D, E, and J represent a carbon atom, and G represents an
oxygen or sulfur atom,
one of R⁸, R⁹, and R¹⁰ represents a group of formula (IV)

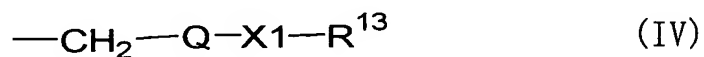


wherein Q, X1, and R¹³ are as defined in claim 31,
or a group of formula (V)

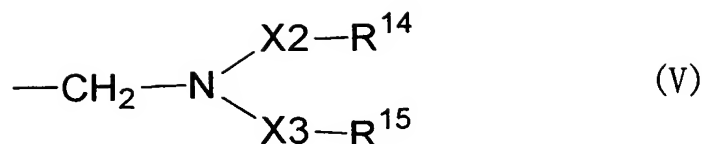


wherein X2, X3, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other groups represent a hydrogen atom.

45. The compound according to claim 29, wherein
R⁵ represents formula (IIIc),
D, E, and J represent a carbon atom, and G represents an
oxygen or sulfur atom,
one of R⁸, R⁹, and R¹⁰ represents a group of formula (IV)



wherein Q, X1, and R¹³ are as defined in claim 31,
or a group of formula (V)



wherein X₂, X₃, R¹⁴, and R¹⁵ are as defined in claim 31, and the other groups represent a hydrogen atom.

46. The compound according to claim 1 or 2, wherein

R⁶ represents a hydrogen atom; optionally substituted C₁₋₆ alkyl; or optionally substituted aryl, R⁷ represents optionally substituted aryl, optionally substituted aryl C₁₋₆ alkyl, optionally substituted aryl C₂₋₆ alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group.

47. The compound according to claim 46, wherein

R⁶ represents a hydrogen atom; C₁₋₆ alkyl optionally substituted by a halogen atom or C₁₋₆ alkoxy; or aryl optionally substituted by a halogen atom, C₁₋₆ alkyl, or C₁₋₆ alkoxy.

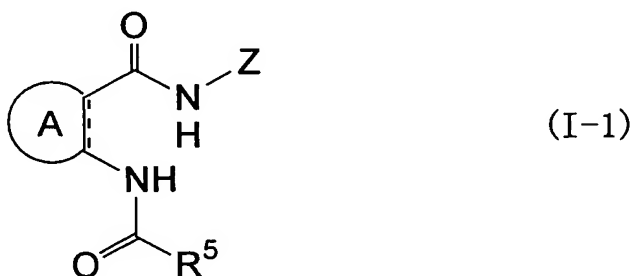
48. The compound according to claim 46, wherein R⁶ represents a hydrogen atom or C₁₋₆ alkyl.

49. The compound according to any one of claims 46 to 48, wherein

R⁷ represents a cyclic group selected from phenyl, naphthyl, furyl, pyrrolyl, and thienyl and is optionally substituted by a halogen atom; C₁₋₆ alkyl optionally substituted by a halogen atom; C₁₋₆ alkoxy in which the alkoxy group is optionally substituted by a halogen atom, aryloxy optionally substituted by a halogen atom and C₁₋₆ alkyl, C₁₋₆ alkoxy in which the alkoxy group is optionally substituted by mono- or di-C₁₋₆ alkylamine in which the di-C₁₋₆ alkylamino group may form cyclic amino optionally containing 1 to 3 heteroatoms, or by a halogen atom, arylthio optionally substituted by a halogen atom and C₁₋₆ alkyl, C₁₋₆ alkylthio in which the alkylthio group is optionally substituted by mono- or di-C₁₋₆ alkylamine in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms, or by a halogen atom,

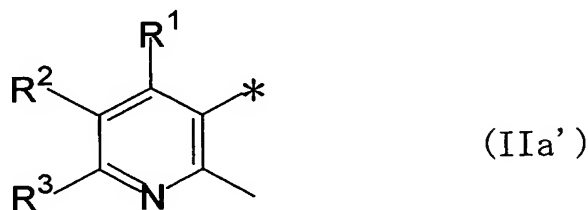
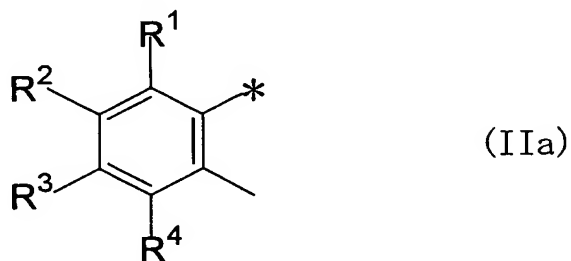
arylamino optionally substituted by C₁₋₆ alkyl, mono- or di-C₁₋₆ alkylamine in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms; hydroxyl; mono- or di-C₁₋₆ alkylamino in which the di-C₁₋₆ alkylamino may form cyclic amino optionally containing 1 to 3 heteroatoms; nitro; C₂₋₆ alkenyloxy; or C₂₋₆ alkynyloxy.

50. The compound according to claim 1 or 2, wherein formula (I) is represented by formula (I-1)



wherein A, R⁵, Z, and ---- are as defined in claim 1.

51. The compound according to claim 50, wherein A represents formula (IIa) or formula (IIa'):

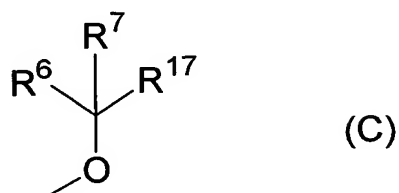
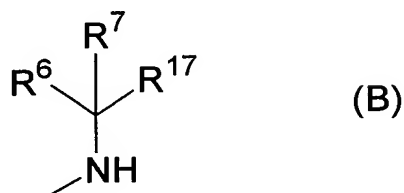


wherein R¹, R², R³, and R⁴ are as defined in formula (IIa) and formula (IIa') in claim 3,

R⁵ represents optionally substituted C₅₋₇ cycloalkyl, optionally substituted aryl, or optionally substituted saturated or unsaturated five-

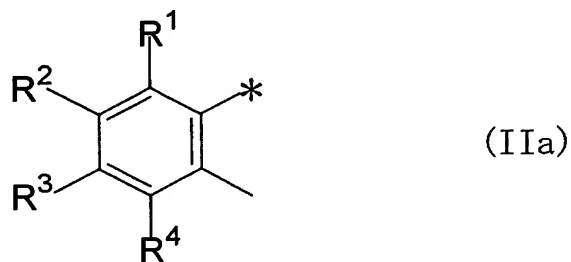
or six-membered heterocyclic group,

Z represents group (A), group (B), or group (C):



wherein R^6 represents a hydrogen atom or C_{1-6} alkyl, R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and R^{17} represents a hydrogen atom.

52. The compound according to claim 50, wherein A represents formula (IIa):

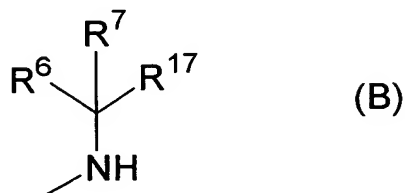
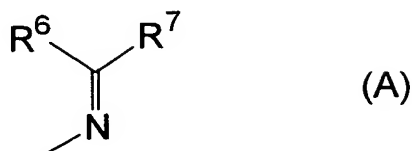


wherein R^1 , R^2 , R^3 , and R^4 are as defined in formula (IIa) in claim 3,

--- represents a double bond,

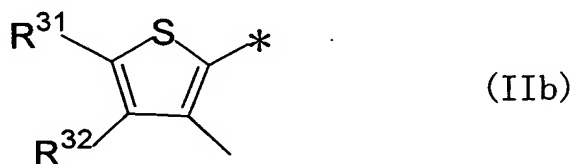
R^5 represents optionally substituted C_{5-7} cycloalkyl, optionally substituted aryl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group,

Z represents group (A) or group (B):



wherein R^6 represents a hydrogen atom or C_{1-6} alkyl, R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and R^{17} represents a hydrogen atom.

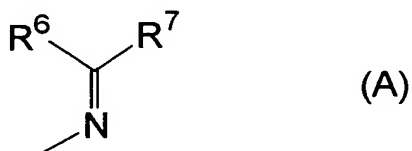
53. The compound according to claim 50, wherein A represents formula (IIb):

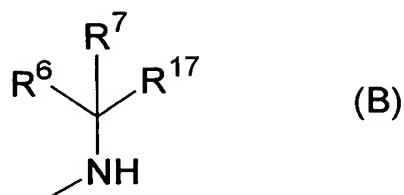


wherein R^{31} and R^{32} are as defined in formula (IIb) in claim 17,

R^5 represents optionally substituted C_{5-7} cycloalkyl, optionally substituted aryl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group,

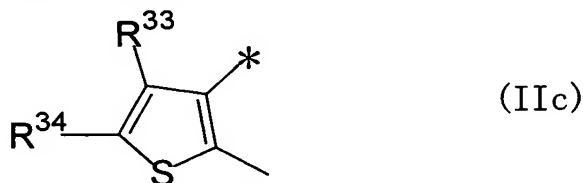
Z represents group (A) or group (B):





wherein R^6 represents a hydrogen atom or C_{1-6} alkyl, R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and R^{17} represents a hydrogen atom.

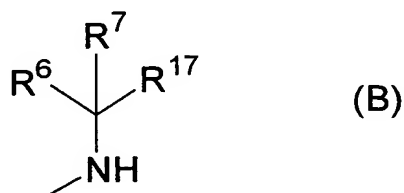
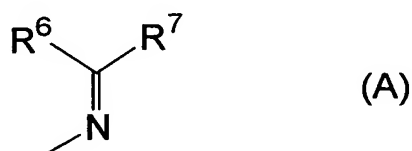
54. The compound according to claim 50, wherein A represents formula (IIc):



wherein R^{33} and R^{34} are as defined in formula (IIc) in claim 17,

R^5 represents optionally substituted C_{5-7} cycloalkyl, optionally substituted aryl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group,

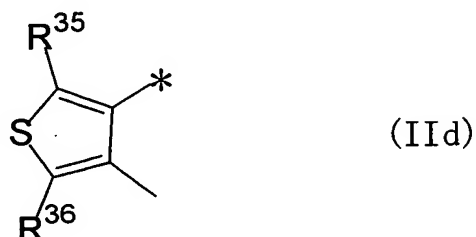
Z represents group (A) or group (B):



wherein R^6 represents a hydrogen atom or C_{1-6} alkyl, R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and R^{17}

represents a hydrogen atom.

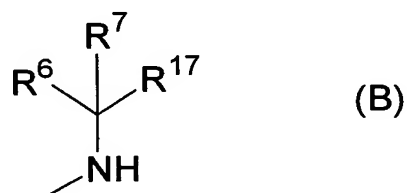
55. The compound according to claim 50, wherein A represents formula (IIId):



wherein R^{35} and R^{36} are as defined in formula (IIId) in claim 17,

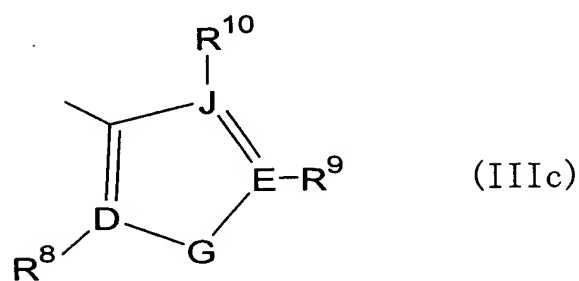
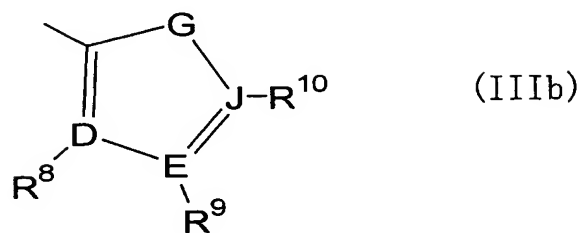
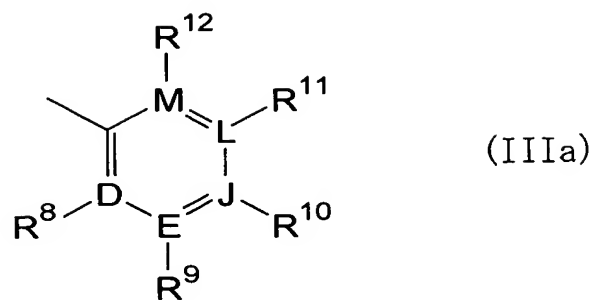
R^5 represents optionally substituted C_{5-7} cycloalkyl, optionally substituted aryl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group,

Z represents group (A) or group (B):



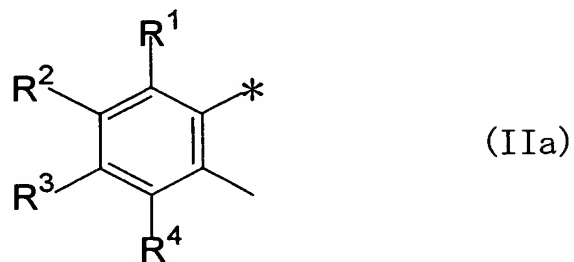
wherein R^6 represents a hydrogen atom or C_{1-6} alkyl, R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and R^{17} represents a hydrogen atom.

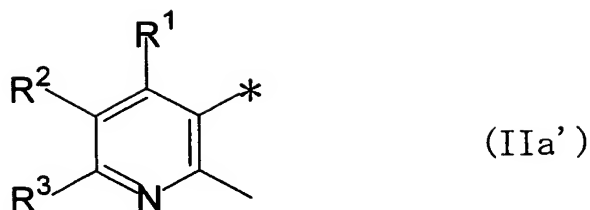
56. The compound according to any one of claims 51 to 55, wherein R^5 represents formula (IIIa), formula (IIIb), or formula (IIIc)



wherein D, E, G, J, L, M, R^8 , R^9 , R^{10} , R^{11} , and R^{12} are as defined in claim 29.

57. The compound according to claim 50, wherein A represents formula (IIa) or formula (IIa'):

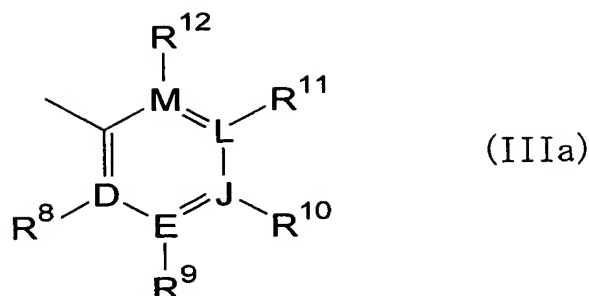




wherein

- (1) R^1 , R^2 , R^3 , and R^4 represent a hydrogen atom,
- (2) R^1 and R^4 represent a hydrogen atom, any one of R^2 and R^3 represents a halogen atom; hydroxyl; optionally substituted C_{1-6} alkyl; optionally substituted C_{1-6} alkoxy; optionally substituted mono- or diarylamino; optionally substituted mono- or di- C_{1-6} alkylamino in which the dialkylamino together may form optionally substituted cyclic amino optionally containing 1 to 3 heteroatoms; or optionally substituted mono- or di- C_{2-6} alkenylamino in which the di- C_{2-6} alkenylamino group together may form optionally substituted unsaturated cyclic amino optionally containing 1 to 3 heteroatoms, and the other represents a hydrogen atom,
- (3) R^1 and R^4 represent a hydrogen atom, and R^2 and R^3 , which may be the same or different, represent a halogen atom; hydroxyl; optionally substituted C_{1-6} alkyl; or optionally substituted C_{1-6} alkoxy,
- (4) R^1 and R^4 represent a hydrogen atom, and R^2 and R^3 together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring,
- (5) R^1 and R^4 represent a hydrogen atom, any one of R^2 and R^3 represents optionally substituted mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino together may form optionally substituted cyclic amino optionally containing 1 to 3 heteroatoms, and the other represents a hydrogen atom, or
- (6) R^1 and R^4 represent a hydrogen atom, any one of R^2 and R^3 represents optionally substituted C_{1-6} alkoxy, and the other represents a hydrogen atom,

R^5 represents formula (IIIa)

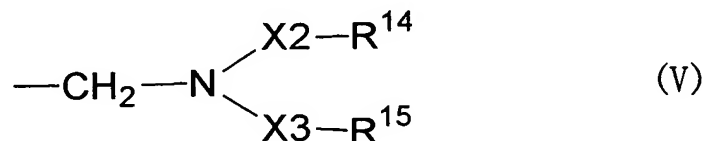


wherein

- (i) D, E, J, L, and M represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,
- (ii) any one or two of D, E, J, L, and M represent a nitrogen atom, and the others represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} may be the same or different and represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom, or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,
- (iii) D, E, J, L, and M represent a carbon atom, R^8 , R^9 , and R^{12} represent a hydrogen atom, any one of R^{10} and R^{11} represents a group of formula (IV)

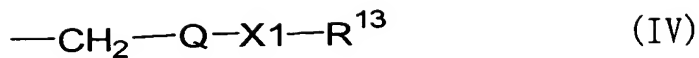


wherein Q, X1, and R^{13} are as defined in claim 31,
or a group of formula (V)

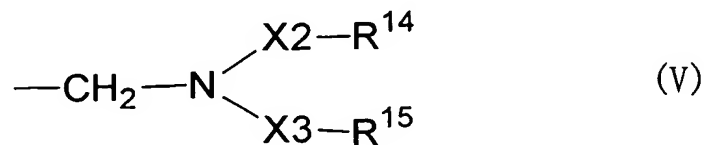


wherein X2, X3, R^{14} , and R^{15} are as defined in claim 31,
and the other represents a hydrogen atom, or

- (iv) any one or two of D, E, J, L, and M represent a nitrogen atom, and the others represent a carbon atom, R^8 , R^9 , and R^{12} represent a hydrogen atom, and one of R^{10} and R^{11} represents a group of formula (IV)

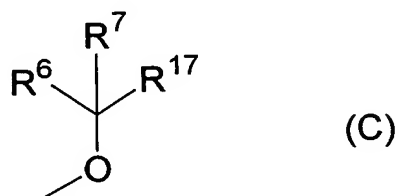
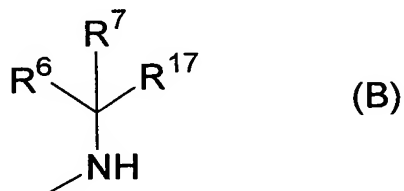
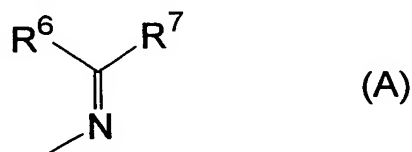


wherein Q, X¹, and R¹³ are as defined in claim 31,
or a group of formula (V)



wherein X², X³, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other represents a hydrogen atom,

Z represents group (A), group (B), or group (C):



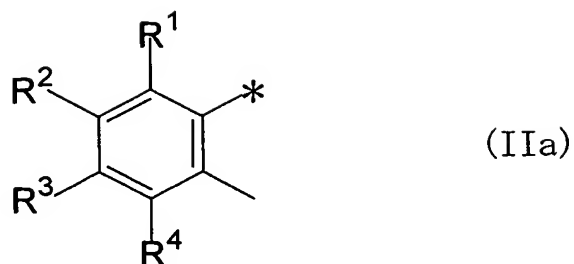
wherein

R⁶ represents a hydrogen atom or C₁₋₆ alkyl,

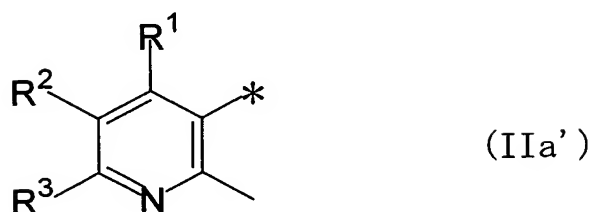
R⁷ represents optionally substituted aryl, optionally substituted aryl C₁₋₆ alkyl, optionally substituted aryl C₂₋₆ alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and

R¹⁷ represents a hydrogen atom.

58. The compound according to claim 50, wherein A represents formula (IIa) or formula (IIa')



(IIa)



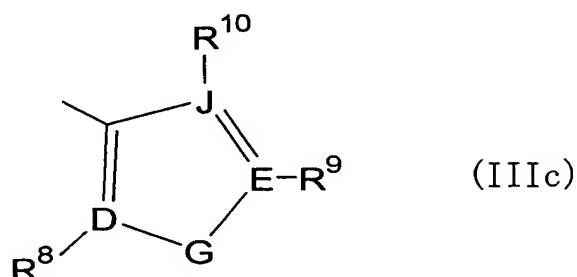
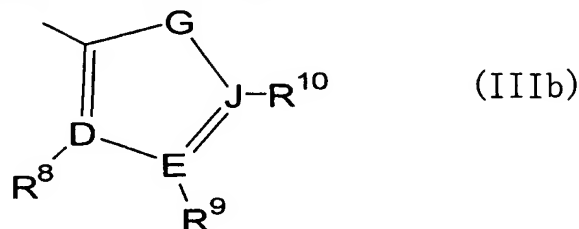
(IIa')

wherein

- (1) R^1 , R^2 , R^3 , and R^4 represent a hydrogen atom,
- (2) R^1 and R^4 represent a hydrogen atom, any one of R^2 and R^3 represents a halogen atom; hydroxyl; optionally substituted C_{1-6} alkyl; optionally substituted C_{1-6} alkoxy; optionally substituted mono- or diarylamino; optionally substituted mono- or di- C_{1-6} alkylamino in which the dialkylamino together may form optionally substituted cyclic amino optionally containing 1 to 3 heteroatoms; or optionally substituted mono- or di- C_{2-6} alkenylamino in which the di- C_{2-6} alkenylamino group together may form optionally substituted unsaturated cyclic amino optionally containing 1 to 3 heteroatoms, and the other represents a hydrogen atom,
- (3) R^1 and R^4 represent a hydrogen atom, and R^2 and R^3 , which may be the same or different, represent a halogen atom; hydroxyl; optionally substituted C_{1-6} alkyl; or optionally substituted C_{1-6} alkoxy,
- (4) R^1 and R^4 represent a hydrogen atom, and R^2 and R^3 together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring,
- (5) R^1 and R^4 represent a hydrogen atom, any one of R^2 and R^3 represents optionally substituted mono- or di- C_{1-6} alkylamino in which the di- C_{1-6} alkylamino together may form optionally substituted cyclic amino optionally containing 1 to 3 heteroatoms, and the other represents a hydrogen atom, or
- (6) R^1 and R^4 represent a hydrogen atom, any one of R^2 and R^3 represents optionally substituted C_{1-6} alkoxy, and the other represents a

hydrogen atom,

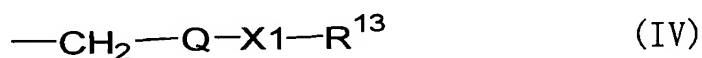
R^5 represents formula (IIIb) or formula (IIIc)



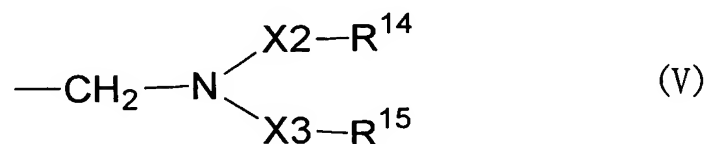
wherein

(i) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, any one or two of R^8 , R^9 , and R^{10} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom, or

(ii) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, one of R^8 , R^9 , and R^{10} represents a group of formula (IV)

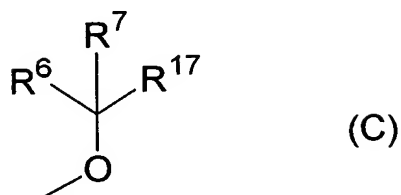
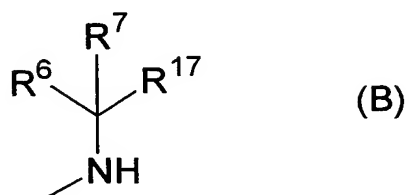


wherein Q, X1, and R^{13} are as defined in claim 31,
or a group of formula (V)



wherein X2, X3, R^{14} , and R^{15} are as defined in claim 31,
and the others represent a hydrogen atom,

Z represents group (A), group (B), or group (C):



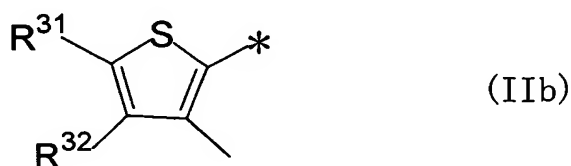
wherein

R^6 represents a hydrogen atom or C_{1-6} alkyl,

R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and

R^{17} represents a hydrogen atom.

59. The compound according to claim 50, wherein A represents formula (IIb)



wherein

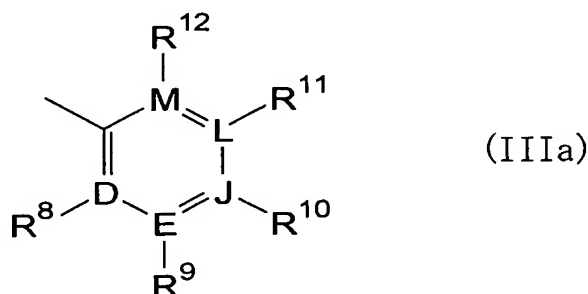
(i) R^{31} and R^{32} represent a hydrogen atom,

(ii) any one of R^{31} and R^{32} represents a hydrogen atom, and the other represents C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms,

(iii) R^{31} and R^{32} , which may be the same or different, represent C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms, or

(iv) R^{31} and R^{32} together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring,

R^5 represents formula (IIIa)

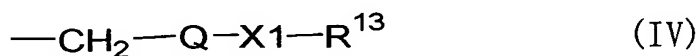


wherein

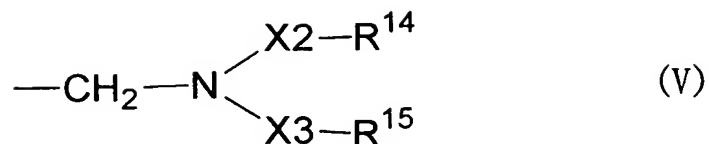
(i) D, E, J, L, and M represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,

(ii) any one or two of D, E, J, L, and M represent a nitrogen atom, and the others represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} may be the same or different and represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom, or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,

(iii) D, E, J, L, and M represent a carbon atom, R^8 , R^9 , and R^{12} represent a hydrogen atom, any one of R^{10} and R^{11} represents a group of formula (IV)

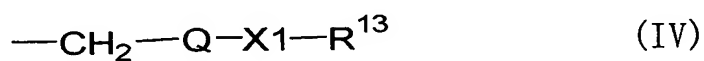


wherein Q, X1, and R^{13} are as defined in claim 31,
or a group of formula (V)

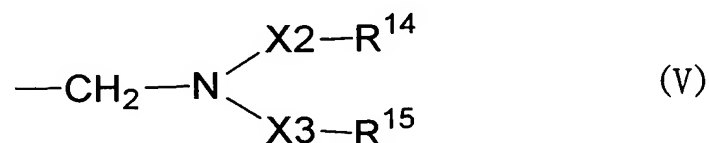


wherein X₂, X₃, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other represents a hydrogen atom,

(iv) any one or two of D, E, J, L, and M represent a nitrogen atom, and
the others represent a carbon atom, R⁸, R⁹, and R¹² represent a
hydrogen atom, and one of R¹⁰ and R¹¹ represents a group of formula
(IV)

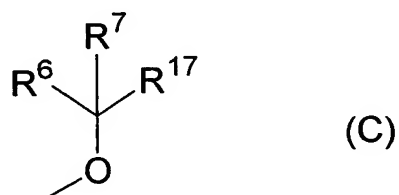
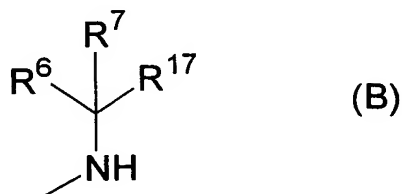


wherein Q, X₁, and R¹³ are as defined in claim 31,
or a group of formula (V)



wherein X₂, X₃, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other represents a hydrogen atom,

Z represents group (A), group (B), or group (C):



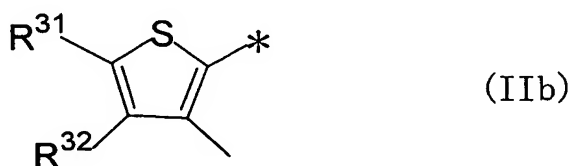
wherein

R^6 represents a hydrogen atom or C_{1-6} alkyl,

R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and

R^{17} represents a hydrogen atom.

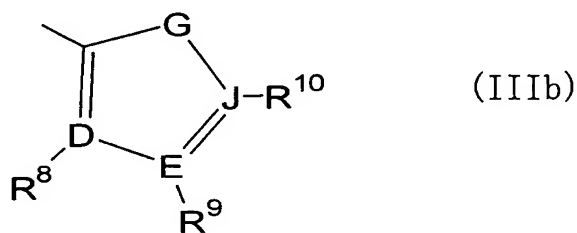
60. The compound according to claim 50, wherein A represents formula (IIb)

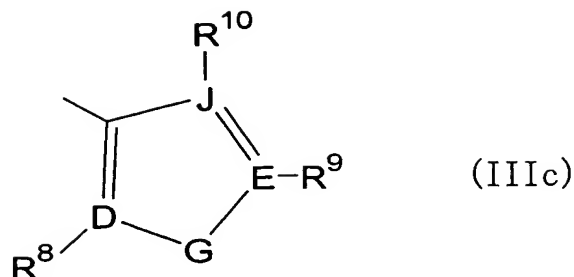


wherein

- (i) R^{31} and R^{32} represent a hydrogen atom,
- (ii) any one of R^{31} and R^{32} represents a hydrogen atom, and the other represents C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms,
- (iii) R^{31} and R^{32} , which may be the same or different, represent C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms, or
- (iv) R^{31} and R^{32} together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring,

R^5 represents formula (IIIb) or formula (IIIc)





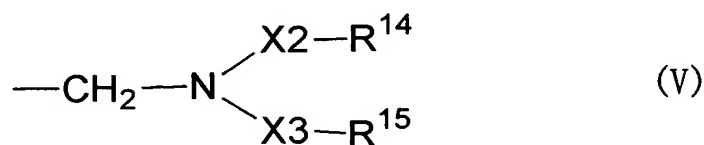
wherein

(i) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, any one or two of R^8 , R^9 , and R^{10} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom, or

(ii) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, one of R^8 , R^9 , and R^{10} represents a group of formula (IV)

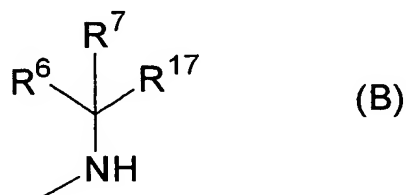
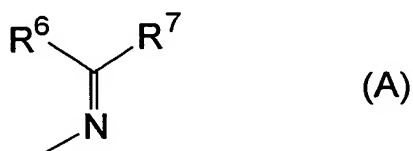


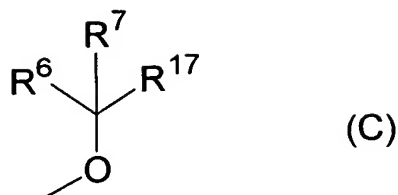
wherein Q, X1, and R^{13} are as defined in claim 31, or a group of formula (V)



wherein X2, X3, R^{14} , and R^{15} are as defined in claim 31, and the others represent a hydrogen atom,

Z represents group (A), group (B), or group (C):





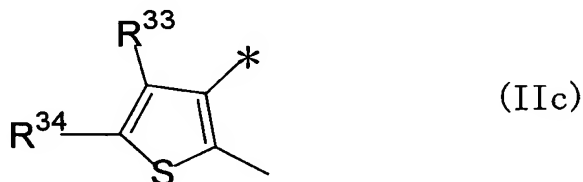
wherein

R^6 represents a hydrogen atom or C_{1-6} alkyl,

R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and

R^{17} represents a hydrogen atom.

61. The compound according to claim 50, wherein A represents formula (IIc)



wherein

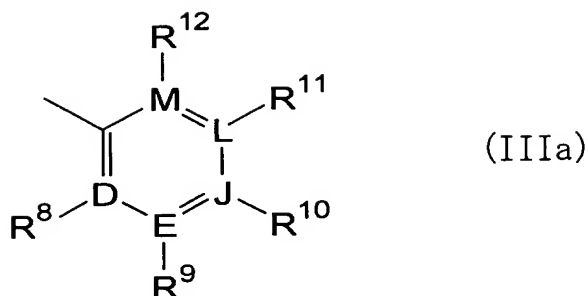
(i) R^{33} and R^{34} represent a hydrogen atom,

(ii) any one of R^{33} and R^{34} represents a hydrogen atom, and the other represents C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms,

(iii) R^{33} and R^{34} , which may be the same or different, represent C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms, or

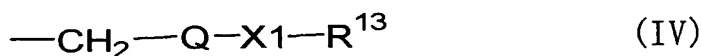
(iv) R^{33} and R^{34} together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring,

R^5 represents formula (IIIa)

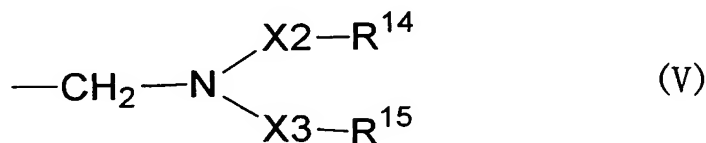


wherein

- (i) D, E, J, L, and M represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,
- (ii) any one or two of D, E, J, L, and M represent a nitrogen atom, and the others represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} may be the same or different and represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom, or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,
- (iii) D, E, J, L, and M represent a carbon atom, R^8 , R^9 , and R^{12} represent a hydrogen atom, any one of R^{10} and R^{11} represents a group of formula (IV)

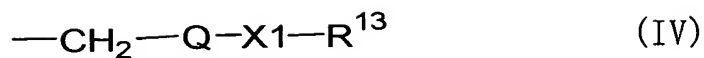


wherein Q, X1, and R^{13} are as defined in claim 31,
or a group of formula (V)

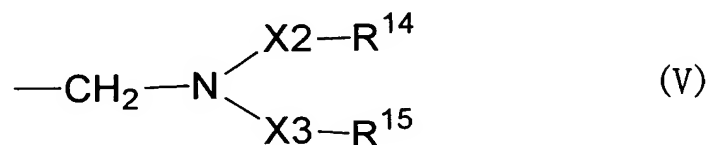


wherein X2, X3, R^{14} , and R^{15} are as defined in claim 31,
and the other represents a hydrogen atom,

- (iv) any one or two of D, E, J, L, and M represent a nitrogen atom, and the others represent a carbon atom, R^8 , R^9 , and R^{12} represent a hydrogen atom, and one of R^{10} and R^{11} represents a group of formula (IV)

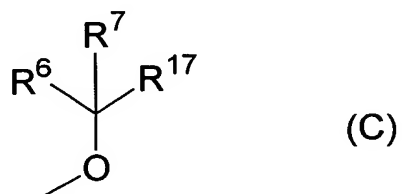
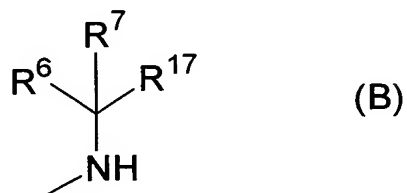
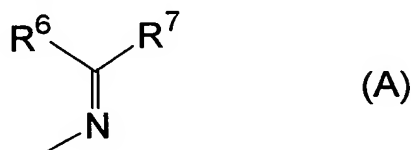


wherein Q, X1, and R^{13} are as defined in claim 31,
or a group of formula (V)



wherein X2, X3, R^{14} , and R^{15} are as defined in claim 31,
and the other represents a hydrogen atom,

Z represents group (A), group (B), or group (C):



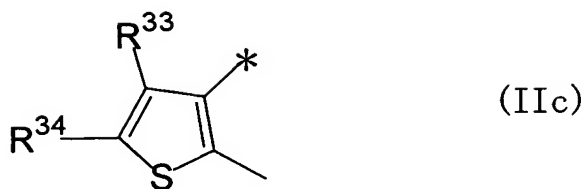
wherein

R^6 represents a hydrogen atom or C_{1-6} alkyl,

R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and

R^{17} represents a hydrogen atom.

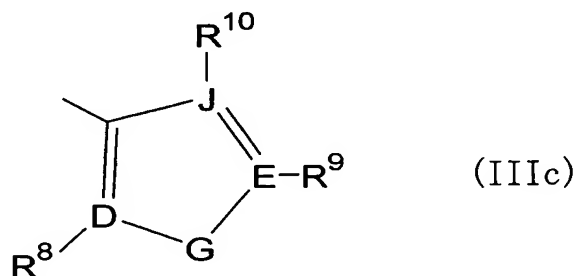
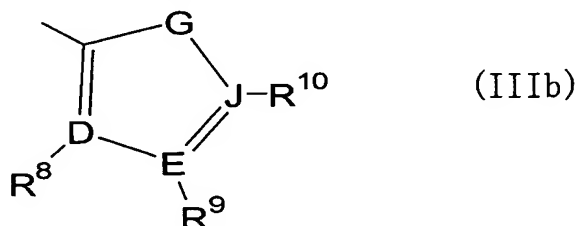
62. The compound according to claim 50, wherein A represents formula (IIc)



wherein

- (i) R^{33} and R^{34} represent a hydrogen atom,
- (ii) any one of R^{33} and R^{34} represents a hydrogen atom, and the other represents C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms,
- (iii) R^{33} and R^{34} , which may be the same or different, represent C_{1-6} alkyl optionally substituted by mono- or di- C_{1-6} alkylamino, which may form cyclic amino, or a halogen atom, and the cyclic amino group may contain 1 to 3 heteroatoms, or
- (iv) R^{33} and R^{34} together with the carbon atoms to which they are respectively attached form an unsaturated five- to seven-membered carbocyclic ring,

R^5 represents formula (IIIb) or formula (IIIc)

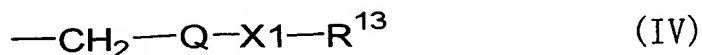


wherein

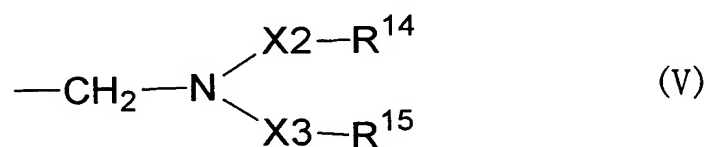
- (i) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, any one or two of R^8 , R^9 , and R^{10} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl

optionally substituted by a halogen atom; or C₁₋₆ alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom, or

(ii) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, one of R⁸, R⁹, and R¹⁰ represents a group of formula (IV)

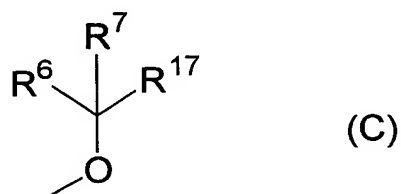
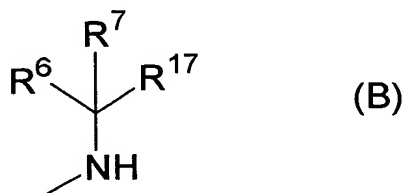
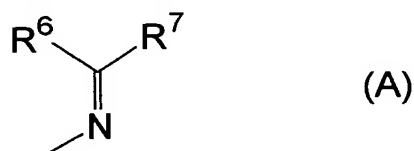


wherein Q, X1, and R¹³ are as defined in claim 31,
or a group of formula (V)



wherein X2, X3, R¹⁴, and R¹⁵ are as defined in claim 31,
and the others represent a hydrogen atom,

Z represents group (A), group (B), or group (C):



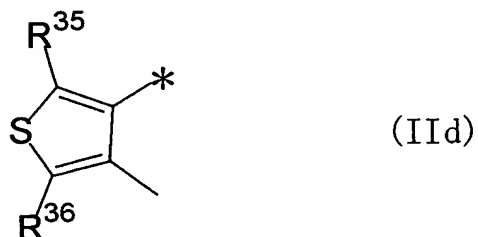
wherein

R⁶ represents a hydrogen atom or C₁₋₆ alkyl,

R⁷ represents optionally substituted aryl, optionally substituted aryl C₁₋₆ alkyl, optionally substituted aryl C₂₋₆ alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and

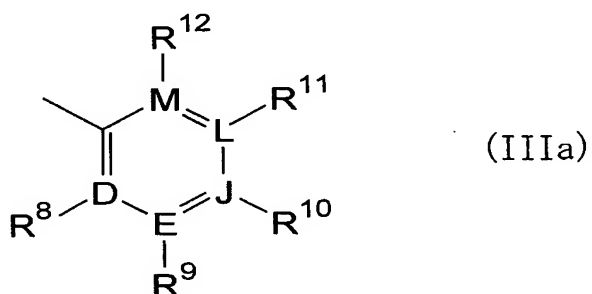
R^{17} represents a hydrogen atom.

63. The compound according to claim 50, wherein A represents formula (IIId)



wherein R^{35} and R^{36} represent a hydrogen atom, or any one of R^{35} and R^{36} represents a hydrogen atom with the other representing C_{1-6} alkyl optionally substituted by a halogen atom,

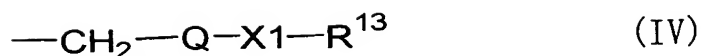
R^5 represents formula (IIIa)



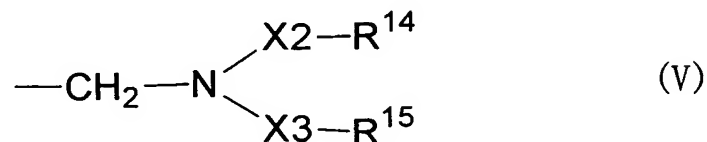
wherein

- (i) D, E, J, L, and M represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,
- (ii) any one or two of D, E, J, L, and M represent a nitrogen atom, and the others represent a carbon atom, any one or two of R^8 , R^9 , R^{10} , R^{11} , and R^{12} may be the same or different and represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom, or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,
- (iii) D, E, J, L, and M represent a carbon atom, R^8 , R^9 , and R^{12} represent a hydrogen atom, any one of R^{10} and R^{11} represents a group of formula

(IV)

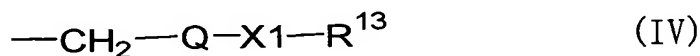


wherein Q, X1, and R¹³ are as defined in claim 31,
or a group of formula (V)

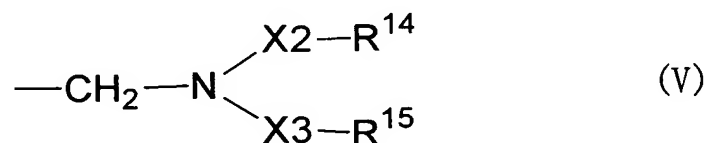


wherein X2, X3, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other represents a hydrogen atom, or

(iv) any one or two of D, E, J, L, and M represent a nitrogen atom, and
the others represent a carbon atom, R⁸, R⁹, and R¹² represent a
hydrogen atom, and one of R¹⁰ and R¹¹ represents a group of formula
(IV)

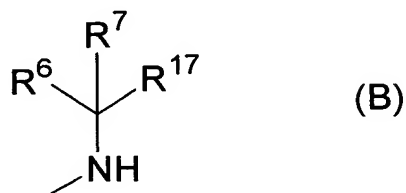
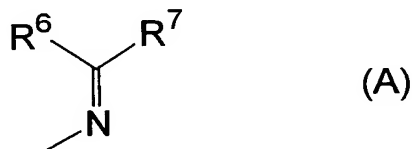


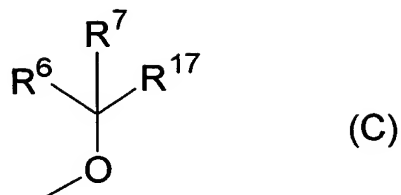
wherein Q, X1, and R¹³ are as defined in claim 31,
or a group of formula (V)



wherein X2, X3, R¹⁴, and R¹⁵ are as defined in claim 31,
and the other represents a hydrogen atom,

Z represents group (A), group (B), or group (C):





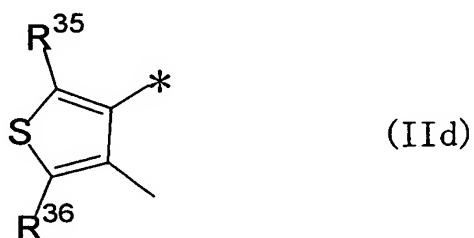
wherein

R^6 represents a hydrogen atom or C_{1-6} alkyl,

R^7 represents optionally substituted aryl, optionally substituted aryl C_{1-6} alkyl, optionally substituted aryl C_{2-6} alkenyl, or optionally substituted saturated or unsaturated five- or six-membered heterocyclic group, and

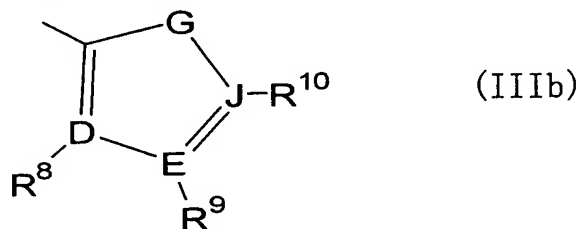
R^{17} represents a hydrogen atom.

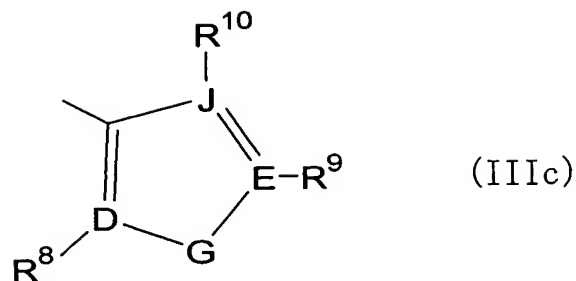
64. The compound according to claim 50, wherein A represents formula (IIId)



wherein R^{35} and R^{36} represent a hydrogen atom, or any one of R^{35} and R^{36} represents a hydrogen atom with the other representing C_{1-6} alkyl optionally substituted by a halogen atom,

R^5 represents formula (IIIb) or formula (IIIc)

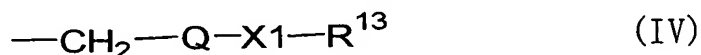




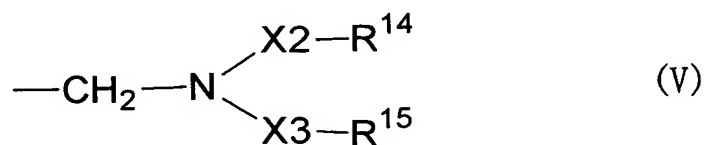
wherein

(i) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, any one or two of R^8 , R^9 , and R^{10} , which may be the same or different, represent a halogen atom; hydroxymethyl; C_{1-6} alkyl optionally substituted by a halogen atom; or C_{1-6} alkoxy optionally substituted by a halogen atom, and the others represent a hydrogen atom,

(ii) D, E, and J represent a carbon atom, G represents an oxygen or sulfur atom, one of R^8 , R^9 , and R^{10} represents a group of formula (IV)

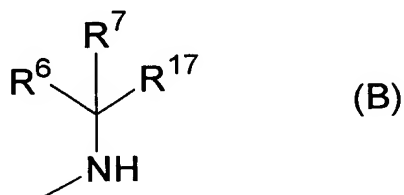


wherein Q, X1, and R^{13} are as defined in claim 31,
or a group of formula (V)

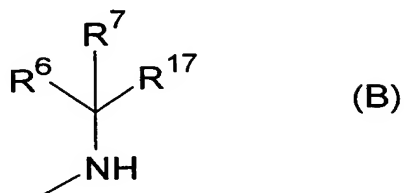
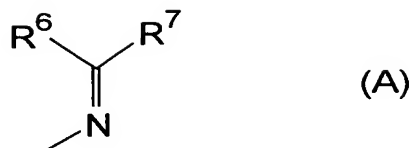


wherein X2, X3, R^{14} , and R^{15} are as defined in claim 31,
and the others represent a hydrogen atom,

Z represents group (A), group (B), or group (C):



$$\begin{array}{c} \text{R}^7 \\ | \\ \text{R}^6 - \text{C} - \text{R}^{17} \\ | \\ \text{O} \end{array} \quad (\text{C})$$



wherein R^6 represents a hydrogen atom or C_{1-6} alkyl, R^7 represents aryl or a saturated or unsaturated five- or six-membered heterocyclic group in which the aryl group and heterocyclic group are optionally substituted by a halogen atom or C_{1-6} alkyl optionally substituted by a halogen atom, and

T represents C_{2-8} alkylene chain.

66. A pharmaceutical composition comprising as an active ingredient a compound according to any one of claims 1 to 65 or a pharmaceutically acceptable salt or solvate thereof.

67. The pharmaceutical composition according to claim 66, which can be used for the prevention or treatment of diseases for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective.

68. The pharmaceutical composition according to claim 67, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is hyperphosphatemia.

69. The pharmaceutical composition according to claim 67, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is renal failure or chronic renal failure.

70. The pharmaceutical composition according to claim 67, wherein the diseases for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective are secondary hyperparathyroidism and primary hyperparathyroidism and diseases related thereto.

71. The pharmaceutical composition according to claim 70, wherein the secondary hyperparathyroidism-related disease is renal osteodystrophy, central or peripheral nervous system damage induced by PTH increase or vitamin D lowering, anemia, myocardiopathy, hyperlipidemia, anomaly of saccharometabolism, pruritus cutaneus, tendon rupture, sexual dysfunction, muscle damage, skin ischemic ulcer, growth retardation, heart conduction disturbance, pulmonary diffusing impairment, immune deficiency, ostealgia and arthralgia, bone deformity, or fracture.

72. The pharmaceutical composition according to claim 67, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is calcium/phosphorus metabolic disorder, for example, metabolic osteopathy.

73. The pharmaceutical composition according to claim 67, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is a disease for which the suppression of calcium and/or phosphorus product is therapeutically effective.

74. The pharmaceutical composition according to claim 73, wherein the disease for which the suppression of calcium and/or phosphorus product is therapeutically effective is calcification of cardiovascular system in dialysis patients, age-related arterial sclerosis, diabetic vasculopathy, calcification of soft tissue, metastatic calcification, ectopic calcification, red eye, arthralgia, myalgia, pruritus cutaneus, heart conduction disturbance, pulmonary diffusing impairment, angina pectoris, cardiac infarction, or heart failure induced by cardiac murmur or

valvular disease.

75. A serum phosphorus concentration lowering agent comprising a compound or a pharmaceutically acceptable salt or solvate thereof according to any one of claims 1 to 65.

76. A phosphate transport inhibitor comprising a compound or a pharmaceutically acceptable salt or solvate thereof according to any one of claims 1 to 65.

77. Use of the compound according to any one of claims 1 to 65 or a pharmaceutically acceptable salt or solvate thereof, for the manufacture of a medicament in the prevention or treatment of diseases for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically effective.

78. The use according to claim 77, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is hyperphosphatemia.

79. The use according to claim 77, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is renal failure or chronic renal failure.

80. The use according to claim 77, wherein the diseases for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective are secondary hyperparathyroidism and primary hyperparathyroidism and diseases related thereto.

81. The use according to claim 80, wherein the secondary hyperparathyroidism-related disease is renal osteodystrophy, central or peripheral nervous system damage induced by PTH increase or vitamin D lowering, anemia, myocardopathy, hyperlipidemia, anomaly of

saccharometabolism, pruritus cutaneus, tendon rupture, sexual dysfunction, muscle damage, skin ischemic ulcer, growth retardation, heart conduction disturbance, pulmonary diffusing impairment, immune deficiency, ostealgia and arthralgia, bone deformity, or fracture.

82. The use according to claim 77, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is calcium/phosphorus metabolic disorder, for example, metabolic osteopathy.

83. The use according to claim 77, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is a disease for which the suppression of calcium and/or phosphorus product is therapeutically effective.

84. The use according to claim 83, wherein the disease for which the suppression of calcium and/or phosphorus product is therapeutically effective is calcification of cardiovascular system in dialysis patients, age-related arterial sclerosis, diabetic vasculopathy, calcification of soft tissue, metastatic calcification, ectopic calcification, red eye, arthralgia, myalgia, pruritus cutaneus, heart conduction disturbance, pulmonary diffusing impairment, angina pectoris, cardiac infarction, or heart failure induced by cardiac murmur or valvular disease.

85. Use of the compound according to any one of claims 1 to 65 or a pharmaceutically acceptable salt or solvate thereof, for the manufacture of a serum phosphorus concentration lowering agent.

86. Use of the compound according to any one of claims 1 to 65 or a pharmaceutically acceptable salt or solvate thereof, for the manufacture of a phosphate transport inhibitor.

87. A method for preventing or treating a disease for which serum phosphorus lowering action or phosphate transport inhibition is

therapeutically effective, said method comprising the step of administering a therapeutically or prophylactically effective amount of a compound according to any one of claims 1 to 65 or a pharmaceutically acceptable salt or solvate thereof to a mammal.

88. The method according to claim 87, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is hyperphosphatemia.

89. The method according to claim 87, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is renal failure or chronic renal failure.

90. The method according to claim 87, wherein the diseases for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective are secondary hyperparathyroidism and primary hyperparathyroidism and diseases related thereto.

91. The method according to claim 90, wherein the secondary hyperparathyroidism-related disease is renal osteodystrophy, central or peripheral nervous system damage induced by PTH increase or vitamin D lowering, anemia, myocardiopathy, hyperlipidemia, anomaly of saccharometabolism, pruritus cutaneus, tendon rupture, sexual dysfunction, muscle damage, skin ischemic ulcer, growth retardation, heart conduction disturbance, pulmonary diffusing impairment, immune deficiency, ostealgia and arthralgia, bone deformity, or fracture.

92. The method according to claim 87, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is calcium/phosphorus metabolic disorder, for example, metabolic osteopathy.

93. The method according to claim 87, wherein the disease for which serum phosphorus lowering action or phosphate transport inhibition is therapeutically or prophylactically effective is a disease for which the suppression of calcium and/or phosphorus product is therapeutically effective.

94. The method according to claim 93, wherein the disease for which the suppression of calcium and/or phosphorus product is therapeutically effective is calcification of cardiovascular system in dialysis patients, age-related arterial sclerosis, diabetic vasculopathy, calcification of soft tissue, metastatic calcification, ectopic calcification, red eye, arthralgia, myalgia, pruritus cutaneus, heart conduction disturbance, pulmonary diffusing impairment, angina pectoris, cardiac infarction, or heart failure induced by cardiac murmur or valvular disease.

95. A method for lowering the concentration of serum phosphorus in a blood stream, said method comprising the step of administering a therapeutically or prophylactically effective amount of a compound according to any one of claims 1 to 65 or a pharmaceutically acceptable salt or solvate thereof to a mammal.

96. A method for inhibiting phosphate transport in vivo, said method comprising the step of administering a therapeutically or prophylactically effective amount of a compound according to any one of claims 1 to 65 or a pharmaceutically acceptable salt or solvate thereof to a mammal.